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ABSTRACT

The report presents an analysis of changes in childbearing plans of young women and the implications of these plans for understanding labor force behavior as well as predicting fertility levels of the population. Data used were derived from the National Longitudinal Study, a nationally representative survey of 5,000 young women born between 1944-54. The first chapter contains introductory information and summaries of the other three chapters. Chapter Two presents a description of and statistics on the amount of change in level of birth expectations between 1971-73 for 17 to 27 year old women, which amounted to a decrease of about 300 children per 1,000 women. Analysis of behavior and attitudinal changes is presented with an attempt to relate the decline to both stable and changing characteristics of women. Chapter Three develops nonrecursive statistical models to investigate the effects of women's labor force participation plans and fertility expectations on each other. Chapter Four shows that there is a large, statistically significant, inverse relationship between women's age and the effect of their labor force participation plans on their fertility expectations. Appended material includes equations used in the statistical model, references, and 15 tables of statistical data. (Author/MS)

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# BIRTH EXPECTATIONS AND WORKING PLANS OF YOUNG WOMEN: CHANGES IN ROLE CHOICES

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# BIRTH EXPECTATIONS AND WORKING PLANS OF YOUNG WOMEN: CHANGES IN ROLE CHOICES

Larry E. Suter Linda J. Waite Ross M. Stolzenberg

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## TABLE OF CONTENTS

Page

CHAPTER I: INTRODUCTION . . . . . . . . . . . . . . . . . . . . 1

CHAPTER II: WORKER, HOUSEWIFE, MOTHER: ROLE DECISION OF YOUNG WOMEN. . . . . . . . . . . . 5

CHAPTER III: INTENDED CHILDBEARING AND LABOR FORCE PARTICIPATION OF YOUNG WOMEN: INSIGHTS FROM NONRECURSIVE MODELS . . . . . . . . . . . 33

CHAPTER IV: AGE AND THE RELATIONSHIP BETWEEN YOUNG WOMEN'S PLANS FOR CHILDBEARING AND EMPLOYMENT . . . . . . . . . . . . . . . . . . . 61

APPENDIX . . . . . . . . . . . . . . . . . . . . . . . . . . . 85

# CHAPTER I

## INTRODUCTION

The purpose of this report is to present an analysis of changes in childbearing plans of young women. Changes in births planned by women have important implications for understanding labor force behavior as well as predicting fertility levels of the population. During the past 5 years women have decreased the number of children they expect to have in their lifetime, and actual changes in fertility behavior are reflected in declines in the National birth rate. These decreases in fertility indicators have occurred as labor force participation rates for women continued to rise.

This study of fertility plans and labor force behavior is different from other studies of fertility in that the data available for analysis are longitudinal, that is the same women were surveyed twice, and the sample is representative of all women in the United States who are of age to begin childbearing. The longitudinal nature of the survey will permit a close examination of the amount of change in birth expectations for the same young women and of reasons for these changes. The study shows whether changes in marital status, attitudes toward women working, school attendance, and labor force activity occurred as women changed their birth expectations and fertility performance. These are the first National survey statistics available to provide comprehensive analysis of the causal relationship between working and planning families. Two chapters of this report present an analysis of the dynamics of deciding to limit family size because of considerations of working. A brief description of the sample and response rates is presented in chapter 2 of this report.

Decisions by women to enter and remain in the labor force are affected by, and affect, decisions about other roles that are expected of women--especially that of mother. The increases in labor force participation of mothers of young children in recent years indicate that many women are attempting to combine the two roles However, for those women who work and raise children simultaneously, either time spent working, being mother, or both would have to be restricted since the two are not completely compatible. Thus, fertility and labor force behavior are each components of a single decision about the role of women in American society. This study will attempt to discern whether there is evidence that one decision dominates over the other, whether significant change occurred in a short period in plans to have children and whether fertility plans were determined by permanent changes in role behavior or by immediate economic necessity.

Chapter 2 presents a description of the amount of change in level of birth expectations that occurred between 1971 and 1973 for these 17-to-27-year old women. Characteristics of the women in each of the years such as age at marriage, changes in marital status, education, labor force participation, and attitudes toward women working are examined to determine whether changes in the number of births expected were consistent with other changes in the status of women during this two-year period.

This chapter presents statistics on birth expectations for all women, married, single, or divorced and separated. All groups of women decreased their level of expected completed family size. The average decrease was about 300 children per 1,000 women. Only 57 percent of the women expected exactly the same family size in 1971 as in 1973, and the correlation coefficient between the size of the family expected in 1971 with that in 1973 was .58. Thus, the amount of change which occurred in this two-year period was large. Analysis of the behavior and attitudinal changes is presented with an attempt to relate the decline in expected family size to both stable and changing characteristics of the women.

Chapter 3 of this report presents an analysis of the causal relationship between planning for children and work through a special analytical technique. Women may reduce the number of children they plan to have in order to accommodate their desires for labor force participation (Ridley, 1958). On the other hand, women's plans for labor force participation may be modified to accommodate their preferences for childbearing. It is also possible that women's fertility expectations and labor force participation plans both affect each other simultaneously; and at least one analyst (Mincer, 1963) has suggested that the commonly observed inverse relationship between women's childbearing and labor force activity is spurious and is caused by common antecedents of both variables. These and other related hypotheses are investigated by examining simultaneous equation models of young women's fertility expectations and plans for future labor force participation in this chapter (i.e., plans for labor force participation when they are 35 years old). These simultaneous equation models are estimated with a specialized technique of regression analysis to empirically determine whether the causal relationship between planning working and childbearing is stronger in one direction than in the other. Data on plans for working at age 35 and number of children women expect to have in a lifetime, as indicated in the 1973 survey, are the source of the data for this analysis.

The analysis shows that the number of children women plan to bear has only a small effect on the probability of planning to participate in the labor force at age 35. However, this analysis shows that women's plans to participate in the labor force when they are 35 have a substantial negative effect on the total number of children they plan to bear in a lifetime. This relationship exists for presently-married and for never-married women. Considering the effect of husband's income and attitudes toward their wives working in the labor force does not change the relationship between their work plans and expected family size. The methodological implications of these findings for other studies of women's fertility and labor force activity are also discussed.

Chapter 4 uses data from the 1973 National sample of women between the ages of 19 and 29 years old to investigate the effect of women's age on the relationship between the number of children they plan to bear in their lifetime and whether or not they plan to be employed when they are 35 years old. This paper builds upon findings reported in chapter 3 of this report which developed nonrecursive statistical models to investigate the effects of women's labor force participation plans and fertility expectations on each other. Using similar models, this paper shows that there is a large, statistically significant, inverse relationship between women's age and the effect of their labor force participation plans on their fertility expectations. That is, plans for labor force participation have a larger inhibiting effect on fertility expectations for older women than for younger women. This age effect on the work plans-fertility expectations relationship may arise out of the combined effects of age-related changes in women's knowledge of labor market mechanisms which determine their wage potential and employability, and the rational desires of women who plan to work after childbearing to obtain the most satisfying jobs possible with the highest possible wages. While available data do not allow a direct test of this hypothesis, three competing alternative hypotheses are rejected which initially appeared to be consistent with the findings and reasonable in terms of past research on trends in women's sex role attitudes, statistical considerations, and past theory and research on women's family life cycle stages.

## CHAPTER II

# WORKER, HOUSEWIFE, MOTHER: ROLE DECISIONS OF YOUNG WOMEN

Larry E. Suter Linda J. Waite

The purpose of this paper is to explore some of the reasons for the decline in fertility in the United States during the period 1970 to 1973. Demographic factors clearly cannot explain the dramatic decline in births during this period. For example, there were more women who were married and of childbearing age than at any time in the history of the United States. These were the children of women who married in the late 1940's and completed their families with between 3 and 4 children. If the generation born during the "baby boom" had given birth at the same rate as had their parents, the population would have increased by as much as 6,000,000 births a year between 1970 and 1973 instead of the 3.7 million births that occurred in 1971 or 3.1 million in 1973. Obviously, then, these young women have decided to delay marriage, and if married, to either delay having children or to finish childbearing with smaller families than their parents.

Some survey evidence suggests that young married women are not just delaying the start of their families; they intend to have fewer children altogether. For example, the decrease in actual births has been accompanied by a dramatic decrease in number of children considered ideal for an American family (Blake, 1974).[1] National surveys of number of children actually expected by married women have also shown a decline from 3.1 children expected per woman in 1967 to about 2.8 children expected per woman in 1971 (see table 2.1 below); and the

TABLE 2.1 LIFETIME BIRTHS EXPECTED BY WIVES
18 TO 39 YEARS OLD

(Children per 1,000 women)

| Year | 18 to 39 | 18 to 24 | 25 to 29 |
|---|---|---|---|
| 1974........... | 2,550 | 2,165 | 2,335 |
| 1973........... | 2,638 | 2,261 | 2,386 |
| 1972........... | 2,678 | 2,255 | 2,482 |
| 1971........... | 2,779 | 2,375 | 2,619 |
| 1967........... | 3,118 | 2,852 | 3,037 |

Source: Current Population Survey, Bureau of the Census.

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[1] However, see Sklar and Berkov (1975) for the view that the recent decline in actual births is over because many women who did delay the birth of a child are now bearing their families.

average number of births expected declined further to 2.6 by 1974. Expected family size for young married women (18 to 24 years old) declined to nearly replacement level (2.1 children per women) in 1974 (U.S. Bureau of the Census, 1974).

Several explanations for the recent decline in number of births and in expected family size can be suggested. One is the long term change in the roles of women from exclusive emphasis on childbearing and raising to merging of time spent at working for pay and raising children. The emphasis placed by women on family-related roles, especially before World War II, shifted to include a broader range of acceptable behavior during the 1960's. During the 1950's the role of raising children was separated from the time at work: women were more likely to devote themselves to raising children until grown and then, perhaps, to enter the labor force. Technological advances, which made housework both less time-consuming (and perhaps also less rewarding, e.g., see Hoffman and Wyatt, 1960), probably contributed to a broader range of possible behavior. (Although, see Oppenheimer, 1970, for a different view.) During the 1960's the role of mother and worker are more often combined--women more frequently chose to work and to bear smaller families than earlier. In 1973, for example, 53 percent of married women 20 to 24 years old living with their husbands were working for pay (U.S. Department of Labor, 1974) compared with only 30 percent in 1960, and the proportion of mothers of children under 3 who worked increased from 15 percent in 1960 to 31 percent in 1974 (U.S. Departmert of Labor, 1961: A-13; 1975: 62).

There is also evidence that some women curtailed childbearing because bearing children interferes with their employment. Women who are active in the labor force have fewer children than those less active. For example, women who work full time have fewer children than women who work part time (Sweet, 1968); and women who work most of their lives have fewer births than women who work little or not at all (Kupinsky, 1971).

The lower fertility of working women may occur because young women receive greater rewards from working than having children, and they have less time to spend with their families. Thus, the emphasis on working as a means for self-fulfillment, as recently spoken by leaders of the women's liberation movement (Friedan, 1963; Blake, 1972) and the ensuing conflicts in time and identity caused by having both family and job responsibilities, could have lead to a reduction in the number of births young women expect to have. The reciprocal relationship between choices of work and childbearing will be addressed in a separate section of this report.

Economic necessity may also lead many women to reduce family size. Even though young families were earning higher incomes in 1973 than were young families 20 years earlier, a larger proportion of young couples may feel that they are not able to adequately support a large family and maintain an acceptable standard of living, nor will they be able to do so in the future. Thus, they are more likely to require two incomes per family and to plan smaller families. The theory of the relationship of economic status and family size has been most thoroughly explored and developed by Richard Easterlin (1972) who has argued that although young persons may be better off in 1970 than were young people in 1940, the desired standard of living of young families depend largely on the comparative earnings of young adults and their parents. If the earnings of young persons relative to the earnings of their parents' generation has declined since the 1950's, then their expectations of the future family growth may also reflect the ability to afford fewer children. The Easterlin hypothesis will not be directly tested in this paper; but some implications of it can be formulated and discussed. When the large number of young women born from 1947 to 1954 began to enter the labor force, they were relatively disadvantaged in the competition for jobs because of the large cohort size. This disadvantageous and uncertain economic situation faced by these cohorts may have resulted in cautious childbearing plans.

Concern with over-population and ecology may also reduce family size. Judith Blake has demonstrated that attitudes toward ideal family size have changed dramatically in recent years parallel with the publicity of shortages of necessary items (such as food) in many countries and over-population. For example, Kruegal (1975) and Westoff (1975) have both shown that women who feel that population growth should be limited, plan smaller families than those who do not share population growth concerns. Thus, the recent decline in births may result because young couples are adjusting their expectations of the number of children they should have on the basis of their attitudes toward population growth.

## Data Analysis

The data used to address the problem of short-run changes in birth expectations are derived from the National Longitudinal Study (NLS) of labor market experiences of young women who were born between 1944 and 1954.[2] This nationally representative longitudinal survey of 5,000 women began in 1968, and the women were reinterviewed annually from 1968 to 1973. By 1973, 91 percent of the original sample remained intact.

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[2] The collection of data for this survey is funded by the Manpower Administration, U.S. Department of Labor, and the data were collected by the Bureau of the Census. The questionnaire content on work and education was designed by the Center for Human Resource Research, Ohio State University.

In January 1971 and 1973 the NLS young women were asked the number of children they have ever had, the number of additional births expected, the expected timing of future births, and the number of children they consider ideal for a family. These women were also asked several questions on their attitude toward working wives, their age at marriage, plans for working at age 35, and perception of changes in financial status, as well as standard social and economic characteristics, educational attainment, schooling, income, family background, and labor force experiences as part of the continuing longitudinal survey of work history.

The pattern of change in birth expectations will be briefly reviewed to provide the background for exploring the impact of concern with population growth, economic factors and attitudes towards the role of women on their expected family size. These data represent the first two-year longitudinal data on fertility expectations which are nationally representative of all women, including married, single, divorced, and separated.[3]

Short-run changes in birth expectations of individual women can be related to two kinds of factors: First, changes can be related to the demographic characteristics such as race, age, education, and length of marriage of the respondents which are known to influence the level of expected family size at any point in time; and secondly, to changes in the woman's social or economic situation which may result in revision of her original childbearing plans.

This study will show new data for both kinds of characteristics. First, the relationship of expected family size to known characteristics will be illustrated, and then, changes which occurred between the first and second interviews will be examined for their importance in exploring shifts in level of expected family size.

Table 2.2 displays data on expected family size as reported in 1971 and 1973 for all women 17 to 27 years old (1971), married and single. Expected family size fell dramatically for all women regardless of age, marital status, educational levels, race, age at marriage, current family size, or labor force status. However, the declines were

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[3] Several fertility studies have followed a parity sample of women over a number of years. For example, the Princeton Studies selected white women, married and living with their husbands in certain metropolitan areas who had recently given birth to their second child, and the 1962 Detroit Family Growth Survey selected women who had recently married or who had just had a first, second, or fourth birth. The June 1971-1974 Current Population Surveys of birth expectations are limited to married women.

Table 2.2. Lifetime Births Expected In 1971 And 1973 Per Thousand Women 17 to 27 Years Old In 1971[1]

| Characteristic of women in 1971 | Lifetime births expected 1971 | Lifetime births expected 1973 | Difference (number) 1973 minus 1971 | Difference (percent) 1973/1971 | Number of women (thousands) |
|---|---|---|---|---|---|
| Age in 1971 | | | | | |
| Total.................. | 2,692 | 2,385 | -306 | 88.6 | 14,701 |
| 17-19 years old...... | 2,747 | 2,371 | -376 | 86.3 | 4,556 |
| 20-21 years old...... | 2,649 | 2,294 | -355 | 86.6 | 2,712 |
| 22-24 years old...... | 2,622 | 2,331 | -289 | 88.9 | 4,010 |
| 25-27 years old...... | 2,734 | 2,541 | -192 | 92.9 | 3,424 |
| Race | | | | | |
| White................ | 2,680 | 2,354 | -325 | 87.8 | 12,893 |
| Black................ | 2,772 | 2,596 | -175 | 93.7 | 1,700 |
| Education in 1971 | | | | | |
| 0-8 years............ | 3,285 | 2,706 | -579 | 82.4 | 560 |
| 9-11 years........... | 2,882 | 2,620 | -261 | 90.9 | 3,431 |
| 12 years............. | 2,648 | 2,374 | -273 | 89.7 | 6,773 |
| 13-15 years.......... | 2,608 | 2,196 | -412 | 84.2 | 2,695 |
| 16 years............. | 2,386 | 2,084 | -300 | 87.3 | 1,007 |
| 17 or more years..... | 2,036 | 1,998 | -36 | 98.1 | 235 |
| Marital status in 1971 | | | | | |
| Never married........ | 2,709 | 2,298 | -409 | 84.8 | 6,391 |
| Married.............. | 2,668 | 2,456 | -211 | 92.1 | 7,492 |
| Separated, widowed, divorced............ | 2,780 | 2,421 | -359 | 87.1 | 819 |
| Attitudes toward women's role in 1968 | | | | | |
| Traditional.......... | 2,713 | 2,288 | -424 | 84.3 | 3,254 |
| Moderate-traditional. | 2,764 | 2,422 | -341 | 87.6 | 2,238 |
| Moderate-liberal..... | 2,716 | 2,449 | -266 | 90.2 | 6,793 |
| Liberal.............. | 2,535 | 2,311 | -233 | 91.2 | 2,360 |
| School enrollment in 1971 | | | | | |
| Enrolled in school... | 2,676 | 2,273 | -402 | 84.9 | 4,036 |
| Not enrolled......... | 2,698 | 2,428 | -269 | 90.0 | 10,665 |

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[1] The data in this table were taken from the National Longitudinal Survey of the Labor Market Experiences of Young Women 1968-1973.

greatest for women under 21 years old, those with less than 8 years of schooling, white women, women who never married, women who believed in 1968 that a woman's place was in the home, and women who were in school or working rather than keeping house for the two years. Average family size decreased for those women who were 17 to 27 years old in 1971 from an average of 2.7 expected births per woman to 2.4 births;[4] and the size of a family they said was "ideal" for the American family declined from 2.8 to 2.5 births. Women over 25 years old, who were the most likely to have been married for several years and to have had children by 1973, expected somewhat larger families than younger women.

## Marital Length and Stability

Attitudes toward completed family size are structured by the marital and birth experience of women; thus women who marry young and begin childbearing early have more children than late starters. An explanation of events which affect changes in birth expectations, therefore, must be independent of these known structural characteristics. As one would expect, the more experience a woman had with marriage, childbearing, and rearing children by 1971, the more stable was her expected family size over the two-year period. This is due, in part to the fact that women who had already borne all expected children by 1971 could increase, but not decrease, their expectations; whereas, young unmarried women who had no children could vary their plans more since their answers were entirely hypothetical.

As table 2.2 shows, the older the woman in 1971, the less she decreased her expected family size on the average by 1973. The NLS respondents were in the peak period for childbearing in 1973 since they were 19 to 29 years old. The older women were more likely to have already finished childbearing by that time and so could less often decrease their anticipated family size. Women who had not married by 1971, and thus who tended to be younger than their married counterparts, showed a larger drop in the number of children they expected to bear than those who were currently married. The one instance in which experience with marriage seems to decrease short-run stability is when marital experience is unsuccessful. Separated or divorced women decreased their anticipated family size almost as much as did never married women.

As shown in table 2.3 the longer women had been married the less they decreased their expected family size, although in no category

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[4] This level is somewhat higher than shown in the Current Population Survey, perhaps because of slight differences in questionnaire wording and placement of the item in the questionnaire. See Current Population Reports, Series P-20, No. 265 for comparisons with married women.

Table 2.3. Lifetime Births Expected In 1971 And 1973 Per Thousand Women Married And Living With Their Husbands In 1971 By Age At Marriage And Number Of Years Married

| Characteristics of women in 1971 | Lifetime births expected 1971 | Lifetime births expected 1973 | Difference (number) 1973 minus 1971 | Difference (percent) 1973/1971 | Number of women (thousands) |
|---|---|---|---|---|---|
| Age at marriage | | | | | |
| Less than sixteen years old.......... | 2,822 | 2,609 | -212 | 92.5 | 427 |
| 17-18 years old..... | 2,706 | 2,581 | -124 | 95.4 | 2,193 |
| 19-20 years old..... | 2,686 | 2,425 | -259 | 90.3 | 2,349 |
| 21-22 years old..... | 2,542 | 2,270 | -271 | 89.3 | 1,560 |
| 23-25 years old..... | 2,482 | 2,172 | -310 | 87.5 | 613 |
| Number of years married (1971) | | | | | |
| 1 year or less...... | 2,650 | 2,300 | -349 | 86.8 | 1,001 |
| 2-3 years.......... | 2,523 | 2,246 | -277 | 89.0 | 2,217 |
| 4-5 years........... | 2,576 | 2,378 | -198 | 92.3 | 1,413 |
| 6-7 years........... | 2,765 | 2,582 | -182 | 93.4 | 1,863 |
| 8 years or more..... | 2,957 | 2,955 | -1 | 99.9 | 997 |
| Number of children borne (1971) | | | | | |
| None................ | 2,320 | 2,027 | -292 | 87.4 | 2,498 |
| One................. | 2,433 | 2,211 | -221 | 90.9 | 2,216 |
| Two................. | 2,707 | 2,622 | -84 | 96.9 | 1,844 |
| Three............... | 3,676 | 3,437 | -238 | 93.5 | 671 |
| Four................ | 4,684 | 4,481 | -202 | 95.7 | 174 |
| Five or more........ | 5,976 | 5,811 | -164 | 97.2 | 88 |

did average expected family size increase. Women who had been married eight years or more by 1971 anticipated the same number of total births, about 3 per woman, in 1973 as in 1971. Those who had recently married in 1971 reported in 1973 they expected only 87 percent of births anticipated 2 years earlier (2,300 versus 2,650 births per thousand women). Young brides decreased their anticipated family size much less over the two-year period than did women who had married at somewhat older ages. This resulted in a widening of the gap in expected family size between women who married at the youngest and oldest ages considered here. Women who marry at young ages tend to be less successful family planners than those who delay marriage and this often results in larger completed families for young brides (Westoff, Potter, and Sagi, 1963: 201). Also, early marriage is frequently precipitated by a premarital pregnancy. For example, a study of teenage fertility and family formation by Kantner and Zelnich found that 31 percent of all married teen-agers had been in their first pregnancy at the time of marriage.[5] The NLS data show that young brides were more likely than those who married at older ages to have completed much of their childbearing and so were less able to reduce their birth expectations.

There was a greater proportional decrease in expected family size from 1971 to 1973 for women with few children than for those with several children in 1971, except for women who had borne exactly two children by that year, as seen in table 2.3. This pattern indicates that there may have been a narrowing of the range of acceptable family size during the early 1970's. In the two preceding decades, the size of desirable and acceptable families ranged from two to four children; several surveys showed that about the same proportion of respondents preferred two, three, or four children (Freedman, Whelpton, and Campbell, 1959; Westoff, Mishler, and Kelly, 1957; Freedman, Coombs, and Bumpass, 1965). Evidence that the range of acceptable family size has narrowed was shown in a 1972 Gallup Poll commissioned by Blake. More than half (57 percent) of the young adult respondents in this survey considered two children ideal and three-quarters of the responses were in the range two to three.

In 1973 young women in the NLS survey were even less varied in their family size ideals; 62 percent preferred two and 83 percent preferred either two or three children (see table 2.4). An aversion to childlessness still is evidenced (only 6 percent plan to have no children) but only 14 percent of the respondents gave a family of four or more children as ideal indicating an almost equal aversion to larger families. The narrowing of the range of acceptable family

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[5] Unpublished data obtained in personal communication with Melvin Zelnick.

**Table 2.4.** Number Of Children Considered Ideal For A Family In 1971 And 1973 By Marital Status In 1971

| Number of children considered ideal in 1971 | Total | 1973 | | | | | Sample size |
|---|---|---|---|---|---|---|---|
| | | None | 1 | 2 | 3 | 4+ | |
| All women | | | | | | | |
| Total | 100.0 | 1.1 | 2.4 | 61.9 | 20.9 | 13.7 | 3,657 |
| 0 | 100.0 | 9.4 | 16.5 | 58.8 | 10.6 | 3.5 | 23 |
| 1 | 100.0 | 5.9 | 17.9 | 62.6 | 12.1 | 1.8 | 67 |
| 2 | 100.0 | 1.1 | 2.7 | 80.9 | 11.6 | 3.8 | 1,827 |
| 3 | 100.0 | 0.2 | 1.3 | 51.6 | 37.9 | 8.9 | 971 |
| 4+ | 100.0 | 1.0 | 1.6 | 30.5 | 22.5 | 44.3 | 769 |
| Married | | | | | | | |
| Total | 100.0 | 0.4 | 2.4 | 65.6 | 19.7 | 11.9 | 1,817 |
| 0 | 100.0 | B | B | B | B | B | 3 |
| 1 | 100.0 | - | 17.4 | 65.2 | 18.1 | - | 34 |
| 2 | 100.0 | 0.4 | 2.7 | 82.8 | 10.8 | 3.2 | 1,009 |
| 3 | 100.0 | 0.1 | 1.5 | 51.1 | 37.2 | 10.1 | 479 |
| 4+ | 100.0 | 0.8 | 0.6 | 28.7 | 22.5 | 47.4 | 282 |
| Single (Never married) | | | | | | | |
| Total | 100.0 | 1.7 | 2.6 | 57.9 | 22.0 | 15.8 | 1,668 |
| 0 | 100.0 | 10.7 | 13.3 | 58.7 | 12.0 | 4.0 | 19 |
| 1 | 100.0 | 13.1 | 18.9 | 59.8 | 5.7 | 4.1 | 30 |
| 2 | 100.0 | 1.7 | 2.7 | 78.7 | 12.4 | 4.5 | 707 |
| 3 | 100.0 | 0.4 | 1.2 | 51.1 | 39.9 | 7.4 | 436 |
| 4+ | 100.0 | 1.3 | 2.5 | 31.4 | 21.8 | 43.1 | 429 |

- Represents zero.
B Base too small to allow reliable estimates of percentages.

Table 2.5. Number of Children Expected In 1971 And 1973 By Marital Status In 1971

| Number of children expected in 1971 by marital status in 1971 | Total | Number of children expected in 1973 | | | | | Sample size |
|---|---|---|---|---|---|---|---|
| | | No children | 1 | 2 | 3 | 4 or more | |
| Total | 100.0 | 6.0 | 8.8 | 48.6 | 22.8 | 13.8 | 3,634 |
| None | 100.0 | 49.8 | 10.9 | 29.3 | 6.0 | 3.8 | 156 |
| 1 | 100.0 | 11.8 | 44.5 | 35.8 | 6.0 | 1.8 | 194 |
| 2 | 100.0 | 4.4 | 8.7 | 69.1 | 13.6 | 4.3 | 1,629 |
| 3 | 100.0 | 2.0 | 5.5 | 39.7 | 42.9 | 9.9 | 919 |
| 4 or more | 100.0 | 3.2 | 3.7 | 23.5 | 24.8 | 44.9 | 737 |
| Never married, 1971 | | | | | | | |
| Total | 100.0 | 9.0 | 8.0 | 49.9 | 19.7 | 13.3 | 1,609 |
| None | 100.0 | 41.0 | 11.3 | 37.6 | 5.8 | 4.1 | 113 |
| 1 | 100.0 | 16.7 | 34.8 | 37.8 | 6.0 | 4.3 | 77 |
| 2 | 100.0 | 6.6 | 7.9 | 67.7 | 12.8 | 4.9 | 687 |
| 3 | 100.0 | 3.6 | 5.5 | 44.8 | 36.8 | 9.2 | 381 |
| 4 or more | 100.0 | 5.6 | 4.8 | 28.0 | 22.6 | 39.0 | 351 |
| Married, spouse present | | | | | | | |
| Total | 100.0 | 3.5 | 8.9 | 48.5 | 25.2 | 13.8 | 1,815 |
| None | 100.0 | 71.6 | 9.9 | 10.5 | 4.9 | 2.5 | 38 |
| 1 | 100.0 | 7.8 | 51.9 | 33.3 | 6.7 | 0.3 | 95 |
| 2 | 100.0 | 2.7 | 9.0 | 70.3 | 14.5 | 3.5 | 855 |
| 3 | 100.0 | 1.0 | 5.1 | 36.2 | 47.3 | 10.3 | 491 |
| 4 or more | 100.0 | 0.4 | 1.9 | 20.8 | 27.0 | 50.0 | 336 |

size may have made women with at least three children subject to social pressure to avoid another birth. Mothers of moderate families may have become less willing from 1971 to 1973 to change their plans and move to a large family.

The data shown in tables 2.4 and 2.5 indicate the extent of agreement in number of children expected and considered ideal by women in 1971 and 1973. The correlation coefficient for number of children expected in 1971 and 1973 is .53 and the same coefficient for ideal family size is .50. About 57 percent of women reported exactly the same family size expected in 1971 as two years later. Thus, the general trend toward fewer children expected was accompanied by a considerable movement upward and downward.

## Education and Race

Although marital status and parity directly affect changes in birth expectations, other social characteristics are less clearly related to these changes. For example, in 1973 white women expected only 88 percent of the births they reported expecting in 1971. The comparable figure for black women was 94 percent. Since black women expected more births per woman in the earlier year, the gap between the races in expected births more than doubled in the two-year period. Black women had already borne nearly twice as many children, on the average, by 1971 as had white women. Thus, black women were more experienced with childbearing and therefore more stable in their expectations. In a later section of this paper, the effect of race on expected lifetime births will be examined independent of other relevant variables such as age and education.

In both years the number of children expected is lowest for women with the highest educational attainment. Education (years of schooling completed) is not related in a systematic way to change in expected family size over the two-year period from 1971 to 1973. The largest decline in expected family size appears for women who in 1971 had completed eight years of schooling or less and women with some college education showed the next largest absolute and proportional drop in anticipated births. Women who had completed seventeen or more years of schooling were the most stable in their expectations, probably because they expected few children in the earlier year--around 2. Women at each educational level seemed to have shifted toward expecting a family of 2 children in the two-year period.

## Sex Roles

Women who hold traditional views of appropriate roles for women, that is, those who believe the old saw, "A woman's place is in the home," who feels a woman's life should center around and be devoted to her family while the man fills the role of provider, would be expected to have, and actually do have, more children than those who have less traditional views of sex roles (Retert and Bumpass, 1974). Clearly, women who feel that wife and mother are their most important and most rewarding roles should want to spend more of their lives actively playing these roles, perhaps extending the time in which they are involved in rearing children by having extra children (Hoffman and Wyatt, 1960). If the attitude toward the appropriate role of women is changing toward an emphasis on nonfamily behavior, will women decide to have smaller families? Mason, et al. (1974) have found that women's sex role attitudes have changed since 1970, reflecting especially an increase in support for egalitarian sex-role arrangements and for working women's rights. This liberalization of sex role beliefs could be expected to affect the number of births young women expect to have in their lifetimes for those women who are still able to alter their completed family size.

The NLS respondents were asked a series of three questions designed to measure their sex role attitudes. They were presented with the following scenario:

> "Now I'd like you to think about a family where there is a mother, a father who works full time, and several children under school age. A trusted relative who can care for the children lives nearby. In this family situation, how do you feel about the mother taking a full-time job outside the home?"

and then asked whether this mother should work:

a. If it is absolutely necessary to make ends meet.

b. If she wants to work and her husband agrees.

c. If she prefers to work, but her husband doesn't particularly like it.

The response categories given to the respondent to chose from varied from definitely not all right to definitely all right.

The responses to these questions were summed to form a scale of sex role attitudes which ranged from 3 (very liberal) to 15 (very traditional). The questions were first asked in 1968, 3 years before the first birth expectations' questions and when the cohort was 14 to 24 years old. Women who in 1968 gave liberal responses to these items, reported expectations for the smallest families in 1971. There was no difference in birth expectations between women who gave traditional or moderate responses.

Change in expected lifetime births was strikingly regular in its relationship to sex role attitudes in 1968. The more traditional a woman's attitudes toward sex roles were in 1968, the more she decreased her expected family size from 1971 to 1973, both absolutely and proportionally. In fact, those who were most traditional in 1968 expected the fewest births by 1973. There are several explanations for this about-face. Women who see a conflict between time spent childrearing and working might choose to reduce time spent on childrearing rather than working. Perhaps women who think a mother should not work when her children are young, and yet want to work themselves, resolve this conflict by having fewer (or no) children thus maintaining a traditional separation of roles. The sharp decrease in family size expected by women with traditional sex role beliefs could be accounted for by this explanation if many of these women decided between 1971 and 1973 that they wanted to work rather than have children. In fact, only 12 percent of all women changed their status from housewife or student to worker in that period.

Another possibility is that during the early 1970's a period of "liberation" from stereotyped gender roles occurred for both men and women. The young women NLS respondents may have become substantially more liberal between 1968 and 1972 in their beliefs about appropriate sex roles.[6] Those who were very traditional in the earlier year may have been most likely to change their views, given the forces operating in the society during the 1970's. Thus, they may have changed their minds completely about having large families.

In 1968, when sex role attitudes were first measured, the NLS respondents were 14 to 24 years old. If the youngest women were the most traditional, because of lack of experience with work or childbearing, or because of lack of exposure to competing ideologies, then by 1972 when they were at least 18 years old and one-third were attending college, they could have drastically revised their role perception and family size ideologies. This change is also consistent with the fact that the youngest women expected larger families than older women; and young women decreased their expected family sizes more than any other group by 1973 (see table 2.2). Thus, it is perhaps no surprise to learn that birth expectations dropped most for women who were (in 1971) young and traditional in outlook, who entered college and became aware of new role ideals, then changed their perception of self and of expected family size to about 2 children.

Beliefs about appropriate roles for men and women are closely tied to relative preferences for large or small families. It has already been shown that women who voice traditional beliefs about sex

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[6] The mean of the sex role scale for all respondents dropped from 8.5 in 1968 to 7.3 in 1972. Thus, they became more liberal overall. The scale ranges from 3 = very liberal to 15 = very traditional.

Table 2.6. Lifetime Births Expected In 1971 And 1973 Per Thousand Women 17 to 27 Years Old In 1971 By Changes In Marital And Financial Status

| Characteristics of women in 1971 and 1973 | Lifetime births expected 1971 | Lifetime births expected 1973 | Difference (number) 1973 minus 1971 | Difference (percent) 1973/1971 | Number of women (thousands) |
|---|---|---|---|---|---|
| Change in marital status 1971-1973 | | | | | |
| Never married 1971-1973.................. | 2,730 | 2,272 | -457 | 83.2 | 4,243 |
| Married, spouse present, 1971-1973... | 2,689 | 2,469 | -219 | 91.8 | 6,812 |
| Never married 1971, married 1973......... | 2,677 | 2,359 | -318 | 88.1 | 2,119 |
| Married 1971, other 1973................. | 2,500 | 2,298 | -200 | 91.9 | 556 |
| Other 1971, other 1973................ | 2,689 | 2,400 | -288 | 89.3 | 972 |
| Perceived financial status | | | | | |
| Up 1972, up 1973...... | 2,657 | 2,324 | -332 | 87.5 | 4,001 |
| No change 1972, up 1973................. | 2,627 | 2,371 | -254 | 90.3 | 2,269 |
| Up 1972, no change 1973................. | 2,566 | 2,406 | -158 | 93.8 | 1,991 |
| Down 1972, up 1973.... | 2,663 | 2,283 | -379 | 85.7 | 936 |
| Up 1972, down 1973.... | 2,685 | 2,339 | -346 | 87.1 | 734 |
| No change 1972, 1973.. | 2,887 | 2,496 | -390 | 86.5 | 2,970 |
| Down 1972, no change 1973................. | 2,720 | 2,459 | -260 | 90.4 | 564 |
| No change 1972, down 1973................. | 2,730 | 2,449 | -280 | 89.7 | 591 |
| Down 1972, down 1973.. | 2,746 | 2,321 | -424 | 84.5 | 436 |

roles tend to have given birth to more children than do women with more liberal views (Retert and Bumpass, 1974). A general movement toward more equalitarian roles for men and women as has occurred for some of these young women, would be expected to lead to a reduction in average family size if only because the nontraditional role for women includes having a career; as more women develop careers, more will have less time for the housewife and mother roles. Also, satisfactions which are derived from a job may reduce the need for gratification from continued mothering and ultimately reduce the number of children a woman needs to bear to feel that her life has been productive (Hoffman and Nye, 1974; Hoffman and Wyatt, 1960).

The forces which make the worker role more central in many women's lives are also probably economic. For example, a couple may feel that the lifestyle which they can maintain on one salary is unacceptably low. If both members of a couple must work to maintain what they consider to be an adequate standard of living, fewer resources, either time or money, may be available for raising children. These decisions and attitudes about sex roles and economic conditions are probably too interwoven to be completely separated into distinguishable behavioral patterns by empirical measurements in a sample survey.

However, the data shown in table 2.7 indicate the extent to which birth expectations were changed between 1971 and 1973 as women changed their activities. That table shows the number of women who shifted between working, attending school, and keeping house between these two years and the changes in expectations between the two dates. This table illustrates again that exposure to schooling especially reduces the level of expected family size for young women. Thus, decreases in expected family size were greatest for women who had spent some portion of 1971 or 1973 in school.[7] Decreases were lowest for women who were keeping house during one or in both of the survey years. Women who worked during both years made up the largest proportion of all women (41 percent) and had expected only 2.5 children per woman in 1971 compared with 2.7 or more for all other groups (except those who were keeping house after enrollment in school). Working women dropped their anticipated family size by a large margin, about 355 children per 1,000 women, but not by as much as those who had been in school for at least one of the years. By 1973, working women had, on the average, completed only about 22 percent of their total expected family size. Women who were keeping house in 1971 and 1973 expected to have

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[7] Except for the approximately 240,000 young women who changed from attending school in 1971 to keeping house in 1973. Their increased birth expectations, no doubt, reflect a sudden change in marital status and, for about 40 percent, a birth between 1971 and 1973. Their expectations in 1971 may have been unreasonably low.

Table 2.7. Lifetime Births Expected In 1971, Children Borne By 1973 For Young Women 17 to 27 Years Old In 1971 By Change In Employment Status From 1971 to 1973

(Per thousand women.)

| Labor force status 1971 and 1973 | Number of women (000's) | Births expected 1971 | Children borne 1973 | Change in birth expectation 1971-1973 |
|---|---|---|---|---|
| Labor force status 1971-1973 | | | | |
| In school 1971-1973.......... | 522 | 2,722 | 94 | -534 |
| School 1971, labor force 1973...................... | 849 | 2,790 | 113 | -458 |
| Labor force 1971, school 1973...................... | 584 | 2,750 | 134 | -378 |
| Labor force 1971-1973........ | 5,564 | 2,547 | 566 | -355 |
| Keeping house 1971, labor force 1973................ | 736 | 2,737 | 1,830 | -285 |
| Labor force 1971, keeping house 1973................ | 2,195 | 2,726 | 1,235 | -232 |
| Keeping house 1971-1973...... | 2,855 | 2,939 | 2,919 | -224 |
| School 1971, keeping house 1973...................... | 239 | 2,490 | 618 | +125 |

the largest families, almost 3 children per woman, and in fact, had already completed two-thirds of their expected total family size by 1973. Although the data in this table cannot be conclusive, since there are no statistical controls for the effects of age, marital status, or other characteristics, they do suggest that the experience of working or attending school was definitely instrumental in reducing expected family size between 1971 and 1973.

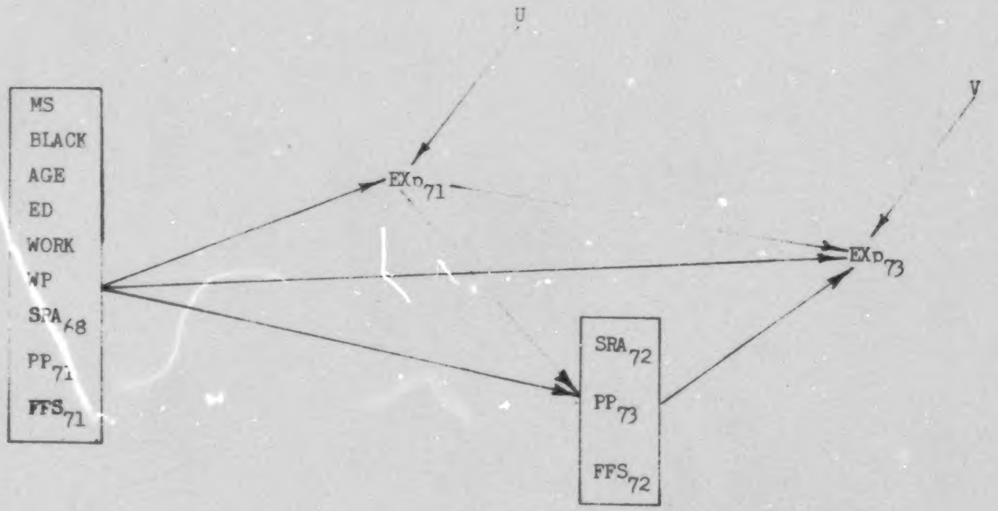
## Multi-variate Causal Model

To this point in our discussion we have considered the relationship of one variable at a time with decreases in the number of children expected. Of course, several factors may act together to produce a decrease in birth expectations or, alternatively, one factor may not appear to be related because its effect is conditioned by still other underlying variables. Further analysis of the determinants of decreases in birth expectations over the two-year period of this survey will be made with a multivariate regression model. Use of a model of this type allows us to examine the relationship between reports of expected family size in two years while holding constant the effect of other factors, such as the woman's age or education. Understanding of the recent decline in fertility and birth expectations may have important implications for public policy. It is crucial for this reason to be sure that the relationships we have identified between birth plans and other characteristics are due to those characteristics and not to other factors.

Measurement of the conditions that effect a change over time in a single characteristic cannot be reliably made with traditional mobility measures, such as the arithmetic difference between the first and second year. For example, groups with a very high or low response in the earliest year would be the most likely to change the greatest distance; and persons who reported no children expected could change in only one direction. (See Blau and Duncan, 1968: 194-199 and Bohrnstedt, 1972 for a discussion of the problems inherent in mobility measures.) Thus, purely on the basis of chance a change from 6 to 4 children would be more likely to occur than a change from 4 to 2 children. Although not all of these problems may have been solved satisfactorily, the model shown in figure 2.1 should avoid some of these measurement problems. The results of this analysis should be viewed as not yet definitive.

The causal model of family size decisions shown in figure 2.1 implies that the number of children which a woman expected to bear in her lifetime, as reported by her in 1973, was a function of her birth expectations in 1971, her sex role attitudes in 1968 and 1972, her ideal family size in 1971 and 1973, her family financial situation in 1970 and 1972, and a number of background variables. For these variables which were measured in at least two different years, the effect on births expected in 1973 can be determined independent of the effect of

Figure 2.1. A Causal Model Of Lifetime Birth Expectations Of Young Women As Reported In 1971 And 1973



The blocked variables are shown together for simplicity of presentation only. Each of these variables effects the endogenous variables separately. The variables in the model are:

MS = marital status dummy (1 = married).
Black = dummy for race (1 = black).
Age = age in years.
Ed = education in years.
Work = dummy for current labor force participation (1 = working).
WP = plans for age 35 (1 = plan to work).
SRA = scale of sex role attitudes.
PP = concern for population problems included as an interval scale of ideal family size and alternately, as a dummy variable scored 1 if ideal family size greater than 2.
FFS = family financial status.
EXp = number of lifetime births expected.

the same factor in the earlier year.

Estimation of the model shown in figure 2.1 gives some indication of the relative impact of three factors of change in American society which may account for the recent decline in births. These are the liberalizing of attitudes toward appropriate sex roles, increasing concern for the problems of population growth and the relatively unfavorable economic situation faced by members of the large cohorts born in the baby boom of the 1950's. Expected family size reported in 1973 will be determined chiefly by the woman's birth expectations two years earlier. Even if family size in 1973 is perfectly correlated with expectations in the earlier year, changes could have occurred in childbearing plans. For example, if every woman reported in 1973 expecting one less child than she foresaw in 1971, then lifetime births expected in 1973 would be simply a linear transformation of expectations two years earlier. But the larger the effects of variables other than birth expectations in 1971 on expectations in 1973 the less family size plans in this later year were determined by their earlier value.

If the impact of liberalization of sex role attitudes, increasing concern for population growth or changing economic circumstances did decrease childbearing plans, these changes should be related to decreases in expected family size. This would be reflected in the coefficients of the model. For example, the measure of sex role attitudes used here runs from very liberal (3) to very traditional (15). A positive effect for this scale on the number of children which young women expect to bear in their lifetimes implies that those with more traditional attitudes toward sex roles expect more children than their more liberal sisters. If this relationship does hold then a general liberalization of sex role attitudes for the young women in the sample would result in a lowering of expected family size. This same relationship should hold for concern for problems of population growth (measured by ideal family size). If women who are not concerned about population growth expect larger families than other women, an increase in this concern from 1971 to 1973 should result in a decrease in the size of expected families between 1971 and 1973.

The model shown in figure 2.1 was estimated for 3,973 respondents, omitting those missing data on any of the variables in the model or who were not interviewed in every year, 1968 to 1973. Of the 5,159 women in the sample, 799 were not interviewed in every year and 387 were eliminated because of missing data. The model is shown in figure 2.1 with all background variables in a block and with the measures of sex role attitudes, population concern, and economic factors in a block, for presentation purposes. Each factor is included separately in the equations for the endogenous variables. The background variables which were included are: age (in years), marital status (dummy for married), race (dummy for black), education (in years), current labor force participation (dummy for working), plans for work at age 35 (dummy for plan to work). All these variables are measured in the 1971 survey.

Table 2.8 presents beta (path) coefficients for the independent variables in the equations for expected births 1971 ($\text{Exp}_{71}$) and for expected births, 1973 ($\text{Exp}_{73}$).

Expected family size reported by the young women in 1971 is more strongly related to birth expectations two years later than other characteristics known about the sample such as age, education, age at marriage, etc. (see table 2.8). However, the partial standardized regression coefficient of .38 indicates there is a considerable amount of change in individual expectations in only a two-year period. Thus, knowing the level of birth expectations in 1971 does not allow one to completely predict what the woman's family plans will be two years later.

## Ideal Family Size and Population Concern

Concern with problems of population growth was not measured directly in this survey. However, the item on *ideal* family size may be a strong indicator of concern with population growth, especially since this question was preceded by the following introductory statement:

> Since the attitudes and plans of young women, like yourself, are among the most important factors in estimating future population growth in the United States, I would like to ask you about your views toward family size.

Research by Kruegal on the connection between concern for population problems and stated ideal family size indicates that persons who believe population growth is a serious problem are about two or three times as likely as those who believe it is no problem to give an ideal family size of 2 children. The measure of association (gamma) indicates the proportion of the variance in ideal family size that can be attributed to concern for population growth. For the survey respondents about the same age as the young women in the NLS (19 to 29 in 1973), the gamma levels were .46 for those 16 to 21 years old and .39 for those 22 to 29 years old. This implies that about 40 percent of the variance in ideal family size reported by individuals in their teens and twenties can be associated with their concern for population growth. Therefore, less than half of the effect of ideal family size in the equations reported in this paper may be interpreted as "population concern." Ideal family size was included in the model as an interval-level variable equal to the number of children which the woman considered ideal for a(n average American) family. However, the results were identical to those obtained by using ideal family size as a dummy variable scored 1 if the woman gave a family size ideal of 2 children or less, zero otherwise.

Table 2.8. Path Coefficients From The Basic Model Of Birth Expectations Of Young Women

(Dependent variables are given in column headings.)

| Independent variable | Birth expectations 1971 | Birth expectations 1973 |
|---|---|---|
| Marital status................. | .03528* | .04165* |
| Black.......................... | -.05943* | .03210* |
| Age............................ | .03880* | .04134* |
| Education...................... | -.06484* | -.05639* |
| Work........................... | -.05359* | -.05234* |
| Work plans..................... | -.02846* | -.00282 |
| Sex role attitudes (1968)...... | .02684* | -.01801 |
| Ideal family size (1971)....... | .56689* | -.07431* |
| Family financial status (1971). | .00350* | -.00810 |
| Birth expectations (1971)...... | | .37979* |
| Sex role attitudes (1972)...... | | .03556* |
| Ideal family size (1973)....... | | .41742* |
| Family financial status (1972). | | .01200 |
| | $R^2$ = .3297 | $R^2$ = .4285 |

* Indicates that the absolute value of the coefficient is at least twice its standard error.

It could be argued that the question on ideal family size was interpreted by respondents as ideal for them, not for all of American society. However, the introduction to the question and the wording which stress a universalistic framework, should reduce the personal effects. Also, the mean response to the question on ideal family size is somewhat higher in 1971 than the mean number of children expected (2.82 versus 2.69) suggesting a true difference in what is perceived to be good for everyone and what is good for the person. This same pattern has been found in a number of other studies which asked respondents specifically about the ideal size of "the average American family" (Freedman, Whelpton, and Campbell, 1959: 222). These features are consistent with the interpretation that ideal family size is an indicator of concern with population problems.

The beta coefficient for ideal family size (1973) is about the same magnitude as that for birth expectations in 1971. This implies that family size plans depend as heavily on current family size ideals as on previous birth expectations. If approximately 40 percent of the impact of ideal family size can be attributed to concern for problems of population growth, as we argued, then women who show this concern expect to have significantly fewer children than those who are not concerned with this issue. In 1971 the average number of children that NLS respondents considered ideal for a(n average American) family was 2.73. By 1973 this ideal had fallen to 2.48. The positive relationship between ideal family size and family size plans in 1973 indicates that women who feel a relatively large family is ideal for families in general expect to have more children than other women. Given this positive relationship in both 1971 and 1973 a decrease in the mean ideal family size implies a decrease in the mean number of births expected. This finding is consistent with our reasoning that increasing concern with problems of population growth caused young women to reduce the size of the families they planned to have.

## Sex Role Attitudes

The influence of sex role attitudes on expected family size in 1973 is much smaller than that of either expectation for lifetime births as reported in 1971 or ideal family size. However, the positive coefficient implies that women with traditional attitudes towards female roles plan larger families than do those with liberal sex role beliefs although the difference is not sizeable. Thus, the observed increase in the "liberal-ness" of the sex role attitudes of NLS respondents should result in a decline in mean number of lifetime births expected. The small effect of this factor on expected family size seems to indicate that more acceptance of nontraditional roles for women has a relatively modest impact on their family size plans.

## Perceived Economic Condition

Economic factors in childbearing decisions are difficult to measure. We have chosen to use a subjective indicator of short-run fluctuations in economic well-being. Respondents were asked in each year "So far as your financial position is concerned, would you say you are better off, about the same, or worse off than you were at this time last year?" The possible answers were: the same, better off, or worse off. While these measures are an indication of the general direction of economic well-being, several factors are unknown. For example, was the change an improvement added to an already very high lifestyle, or to poverty? Did the respondent see the change as temporary and unlikely to recur or merely as an indicator of long range instability in her financial situation? Some of these confounding factors can be reduced by including in the model age, education, race, marital status, and employment status.

The fact remains that the economic conditions being measured are short-run. If one wanted to test Easterlin's (1973) reasoning about the effect of long term relative economic condition (the relative affluence of family of orientation of the woman and her husband on their completed family size) one would need detailed information which is not easily derived from the National Longitudinal Study. Furthermore, the measure of economic well-being used here may be more indicative of the tendency to delay (or permit) births, rather than a predictor of completed family size. And yet, the measure of feelings of financial well-being appears to be a valid indicator of decisions which may occur when a woman changes her expected family size. If economic conditions are worsening for a family, they may choose to limit the future size of their family.

As shown in table 2.8, however, the measures of short-run economic well-being have no effect on the number of expected children in either 1971 or 1973. Apparently changes over a two-year period in the respondent's evaluation of her monetary situation did not influence her long-run childbearing decision. This finding and the results shown in table 2.6, which indicated that nearly all women perceived their economic status either as stable or improving, suggest that the decline in births cannot be directly explained by current economic fluctuations.

One of the reasons for estimating a multivariate model was to insure that the relationships found between the number of children that women expected to have and other variables were not spurious. The partial regression coefficients which give the effect of one factor independent of other variables in the model provide another more thorough test of those statements. It was reported in an earlier section that women who were older, married, and with little education expected larger families in both 1971 and 1973 than did young, single, relatively well-educated women. These findings were confirmed with the multivariate regression analysis. The effect of being black (other factors held constant) on expected family size was negative in 1971 and positive in

1973. That is, black women expected fewer children than white women in 1971 after the effects of education, marital status, age, current labor force participation and other factors were removed. In 1973 after controlling for these relationships black women planned larger families than white women. This reversal was caused by the smaller decrease from 1971 to 1973 in expected family size for black than for white women (see table 2.2), perhaps because black women at higher socioeconomic status levels have not dropped their expectations as much as comparable white women.

## Summary

Cross-sectional surveys of birth expectations of married women have shown a dramatic decline in the total expected family size, especially for young married women 18 to 24 years old, since 1970. Recent population projections prepared by the Bureau of the Census reflect the declining average size of families in the United States; and current birth rates imply a completed family size of less than two children per family. The longitudinal survey of young women 17 to 27 years old (in 1971) analyzed in this paper shows that birth expectations of young women can be very volatile over a two-year period. The correlation between 1971 and 1973 total expected family size for all women (Pearson product moment correlation coefficient) was .53, not an especially strong association and only 57 percent of women reported the same expected family size in 1973 as 1971. Overall, the average family size, considered ideal for the American family and actually expected by these women, declined by about 300 children per 1,000 women between 1971 and 1973, and a larger number of women chose to have 2 children rather than 3 or 4.

The analysis of differentials in birth expectations shows that the number of births expected by women in this age cohort had declined regardless of their characteristics such as age, race, educational level, employment status, attitudes toward women working, or marital status. However, the decline in birth expectations was greater for some groups of women: those who were attending school in 1971 or 1973, or those with some actual labor force experience in one of the years of the survey and those who had few children. Women who had spent most of their time in 1971 and 1973 working around the house had the most stable number of births expected. These women had completed nearly two-thirds of their expected family size by 1973.

The analysis of multi-variate causal models of the effect of changes in role attitudes on changes in birth expectations shows that there may be little influence of attitudes toward women's role in the labor market on level of birth expectations in this two-year period. Indicators of women's role choice (i.e., what they are actually doing) like marital status and current labor force participation show that women who were married expect more children than others, and those who are working expect fewer than non-working women. Young women's beliefs about the ideal size for the average family, which reflect concern with population growth (and probably reflect their relative valuation of mother and worker roles for women), had a substantial impact on the number of children the respondents expect for themselves. Change in this ideal from 1971 to 1973 is consistent with the hypothesis that increasing concern for problems of population growth caused young women to reduce the number of children they planned to have.

This research began with the belief that changes in birth expectations could be explained by changes in attitudes towards the role of women in society, in perceptions of family financial status, or a concern with over-population in the United States. However, the indications are that young women dropped their expected family size regardless of their status on these factors. Although women who were active in school or the labor force were likely to decrease their expected family size in this two-year period by more than women who were keeping house (and thus not actively pursuing nontraditional women's roles), the evidence in this paper suggests that a strong consensus that families in the United States should be limited to 2 children has developed. This change in family size may itself lead to further changes in roles of women in society.

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# CHAPTER III

# INTENDED CHILDBEARING AND LABOR FORCE PARTICIPATION OF YOUNG WOMEN: INSIGHTS FROM NONRECURSIVE MODELS

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## I. Introduction

Demographers, sociologists, economists and feminists have recently devoted a great deal of attention to the relationship between labor force participation and fertility of American women. The motivation for recent research and speculation on this relationship has ranged from purely academic theory construction to rather hard-nosed thinking about the feasibility of implementing national population policy by manipulating job opportunities for women. While there is widespread consensus that understanding the relationship between labor force participation and fertility is important, there seems to be little agreement about the nature of the link between these two aspects of a woman's behavior.

Some indication of current knowledge of the relationship between a woman's childbearing and labor force participation can be obtained by briefly reviewing some recent work on the subject: Kubinsky (1971) presents findings indicating an inverse relationship between the number of children born to a married woman and the proportion of her married life that she has held employment (but see Mason, 1974). Pratt and Whelpton (1956), Ridley (1958), Whelpton, Campbell and Patterson (1966), and others have shown that working wives, regardless of their fecundity, have smaller family size ideals, desires, and expectations than their nonworking counterparts. Whelpton et al. (1966) and Ryder and Westoff (1971) report that women are employed because they like being employed anticipate fewer children than women who work because they need the money provided by a job. Numerous studies have shown that females who plan to hold paid employment also plan to have smaller families than women who have no plans for labor force participation (Blake, 1970; Collver and Langlois, 1962; Collver, 1968; Farley, 1970; Hoffman and Hoffman, 1973; Weller, 1971). These findings suggest that at least part of the relationship between fertility and labor force participation is caused by an inverse relationship between women's desires for employment outside the home and their desires for childbearing.

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However, the exact causal pattern which establishes these inverse relationships between fertility (or fertility expectations) and labor force participation (or labor force participation plans) has yet to be established. As Bumpass and Westoff (1970:95) put it, the key question regarding fertility and female labor force participation is, "Do women limit their fertility in order to have time to pursue their non-family-oriented interests, or do women work if their fertility permits them to do so?" The most sophisticated hypotheses about the relationship between work plans and fertility desires of women imply that both of these factors affect each other. For example, Tien (1966) hypothesized that a conscious decision about the time of marriage divided women into two different types: a) females who want to work and therefore have small families, and b) women who prefer large families and therefore do not work. Blake (1970) and Terry (1974) have suggested that women's preferences for work and childbearing might have reciprocal effects on each other, with preferences for employment both causing and being caused by preferences for family size.

In order to test a hypothesis involving simultaneous reciprocal causation, one must use a statistical method which explicitly allows for simultaneous effects. To the best of our knowledge, statistical analysis which allows for reciprocal effects between childbearing plans or desires and labor force participation plans or desires has not been performed to date. In general, the great bulk of research which considers both fertility and female labor force participation takes either fertility or labor force participation as problematic and attempts to estimate the effect of the other variable on the "Problem" variable. For example, Sweet (1968), Cain (1966), Bowen and Finegan (1969), and Cohen, Rea and Lerman (1970), use various measures of past and future childbearing as predictors of labor force participation of wives.

In this paper we attempt to gain some further understanding of the causal link between young women's plans for childbearing and labor force participation through the use of statistical models which specifically allow for simultaneous reciprocal causation between fertility expectations and labor force participation plans. Our strategy here is to construct a statistical model which: 1) allows labor force participation plans to cause fertility expectations of young women; 2) simultaneously allows fertility expectations to cause labor force participation plans; and 3) allows certain background factors to completely account for the relationship between fertility expectations and labor force participation plans. Inasmuch as the model allows the relationship between fertility expectations and labor force participation plans to be accounted for by three different patterns of causation, estimating its parameters will allow us to estimate and compare the explanatory power of three different hypotheses about plans for employment and intended family size: First, Mincer's assertion that the apparent relationship between the two variables is spurious and actually due to their common causes; Second, the hypothesis that childbearing plans have causal impact on labor force participation plans; and third, the assertion that labor force participation plans have causal impact on fertility expectations.

We now turn to a description of the data we utilize in our analysis. After describing the data, we present some models of fertility expectations and labor force participation plans. After considering elaborations of our basic model, we discuss our findings. Our discussion gives some attention to the relationship between research on intended labor force participation and intended fertility to the relationship between actual labor force participation and actual fertility.

## II. The Data

The data utilized in this paper are drawn from the well-known National Longitudinal Study of the Labor Market Experiences of Young Women (hereafter referred to as the NLS data). The NLS is funded by the U.S. Department of Labor and is being designed and fielded by the Center for Human Resource Research at the Ohio State University and the U.S. Bureau of the Census. The first wave of the NLS was fielded in 1968 and sampled about 5,000 young women between 14 and 24 years old. Attempts to reinterview these women were made annually from 1969 through 1973. In the last year 91 percent of the original sample was intact. Because we utilize variables which were measured in different years of the survey, the present analysis is based on only those sampled women who remained in the study for all six waves. Further, all data cases with "missing" values on any variables used in the present analysis were excluded from statistical computations presented here. Thus, while the sample was selected to be representative of the U.S. 14 to 24 year old female population in 1968, and while these data are believed to be amongst the best available for present purposes, sample attrition may have reduced this representativeness and some caution in generalizing to the population is in order.

Later discussion will be expedited if we now introduce the variables used in our analyses. To avoid confusing a concept with our measurement of it, in the discussion which follows variable names are capitalized. Table 3.1 below provides brief descriptions of the variables for ready reference. The variables used in our analysis are as follows:

Table 3.1. Brief definitions, means and standard deviations of variables

| Variable Symbol | Variable Description | Mean | Standard Deviation |
|---|---|---|---|
| LFPP | Plans for labor force participation at age 35 (1= plan to be employed; O= not sure or plan to be out of labor force) | .4844 | .4982 |
| FE | Fertility expectations (total number of children which respondent plans to have in her lifetime) | 2.3679 | 1.2035 |
| SIBS | Respondent's number of siblings | 3.0765 | 2.289 |
| IFS | Ideal family size (number of children that respondent considers "ideal" for a family) | | |
| BLACK | Respondent's race (1=Negro; O=nonNegro) | .0948 | 0.239 |
| ED | Respondent's number of years of schooling completed | 12.740 | 2.1138 |
| MSP | Marital status (1=married; O=not presently married, or married but presently separated) | .64644 | .47814 |
| AGE | Age in years at time of 1973 interview | 23.745 | 3.1288 |
| LFPMOM | Labor force participation of respondent's mother when respondent was 14 years old (1=mother was in labor force; O=mother was not in labor force) | .3715 | .48327 |
| WORKATT | Work attitudes (9-question scale of respondent's attitudes regarding the benefits and costs of labor force participation by married women) | 22.489 | 5.427 |
| H.ATT | Respondent's report of husband's approval or disapproval of her actual or possible labor force participation at present time | 2.531 | 1.7245 |
| H.INC | Husband's annual income in 12 months preceding 1973 interview | 8894* | 5922* |

Notes:

*Means and standard deviations for H.ATT and H.INC are given for presently married women only. All other means and standard deviations in this table are computed from the total sample.

N=3589 weighted data cases (2199 weighted data cases for presently married women) with no "missing" data values on any of the above variables.

LFPP or Labor Force Participation Plans is a dummy variable based on the respondent's 1973 answer to the question "What kind of work would you like to be doing when you are 35 years old?" Replies to the question were coded one if the respondent planned to hold paid employment and were coded zero if she planned to be a housewife or was not sure of her plans. About five per cent of the respondents were not sure, 48 per cent planned to participate in the labor force, and 47 per cent planned to be housewives.

FE or Fertility Expectations is the total number of children which the respondent planned to have in her lifetime. This variable is formed by summing the respondent's past and expected fertility in 1973.

SIBS or Number of Siblings is the respondent's number of siblings.

IFS or Ideal Family Size is the respondent's answer to the following question:

> Since the attitudes and plans of young women, like yourself, are among the most important factors in estimating future population growth in the United States, I would like to ask you about your views toward family size.
> What do you think is the ideal number of children for a family?

It is important to note that IFS is different from the respondent's own expected fertility.

BLACK is a dummy variable set equal to one if the respondent is Negro and zero if the respondent is not Negro.

ED is the number of years of schooling which the respondent had completed in 1973.

MSP or Marital Status is a dummy variable set equal to one if the respondent is married in 1973.

AGE is the respondent's age in years at the time of the 1973 interview.

LFPMOM or Labor Force Participation of Respondent's Mother is a dummy variable set equal to one if the respondent's mother held a job when the respondent was 14 years old, and set equal to zero if the respondent's mother did not hold a job when the respondent was 14. It is worth noting that our interest in MOTHER'S WORK stems from our belief (shared by others, e.g., Mason, 1974) that a woman's psychological propensity to participate in the labor force is affected by her memory of her mother's attachment to the labor force. Thus, for present purposes, the knowledge of the respondent's memory of her mother's labor force participation is more important than the knowledge of whether or not the mother did in fact hold a job when the respondent was 14.

WORKATT or Work Attitudes is a scale which measures the respondent's beliefs about the benefits and costs of female labor force participation, to the woman, to her family, and to society in general. The value of WORKATT for each respondent is obtained by summing her responses to nine Likert-scale attitude questions listed below. Responses to odd-numbered questions were scored from one (for "strongly agree") to five (for "strongly disagree"). Responses to even-numbered questions were scored from five (for "strongly agree") to one (for "strongly disagree"). Thus, the lower a respondent's score on WORK ATTITUDES, the more she thinks that labor force participation by married women is beneficial (or at least not harmful) to women, their families, and society. The nine attitude items and related instructions are as follows:

> We are interested in your opinion of the employment of wives. I will read you a series of statements, and after each one I would like to know whether or not you: strongly agree, agree, disagree, or strongly disagree?
>
> 1. Modern conveniences permit a wife to work without neglecting her family.
> 2. A woman's place is in the home, not in the office or shop.
> 3. A job provides a wife with interesting outside contacts.
> 4. A wife who carries out her full family responsibilities doesn't have time for outside employment.
> 5. A working wife feels more useful than one who doesn't hold a job.
> 6. The employment of wives leads to more juvenile delinquency.
> 7. Working wives help raise the general standard of living.
> 8. Working wives lose interest in their homes and families.
> 9. Employment of both parents is necessary to keep up with the high cost of living.

H.ATT or Husband's Attitudes Toward Wife's Labor Force Participation is a five-point index of the respondent's perception of her husband's attitudes toward her actual or potential labor force activity at the time of the 1973 interview. Responses to this question were obtained only for presently married women. Respondents who were working or looking for work were asked the following question:

> How does your husband feel about your working -- does he like it very much, like it somewhat, not care either way, dislike it somewhat, or dislike it very much?

Respondents who were not in the labor force were asked:

> How do you think your husband would feel about your working now -- would he like it very much, like it somewhat, not care either way, dislike it somewhat, or dislike it very much?

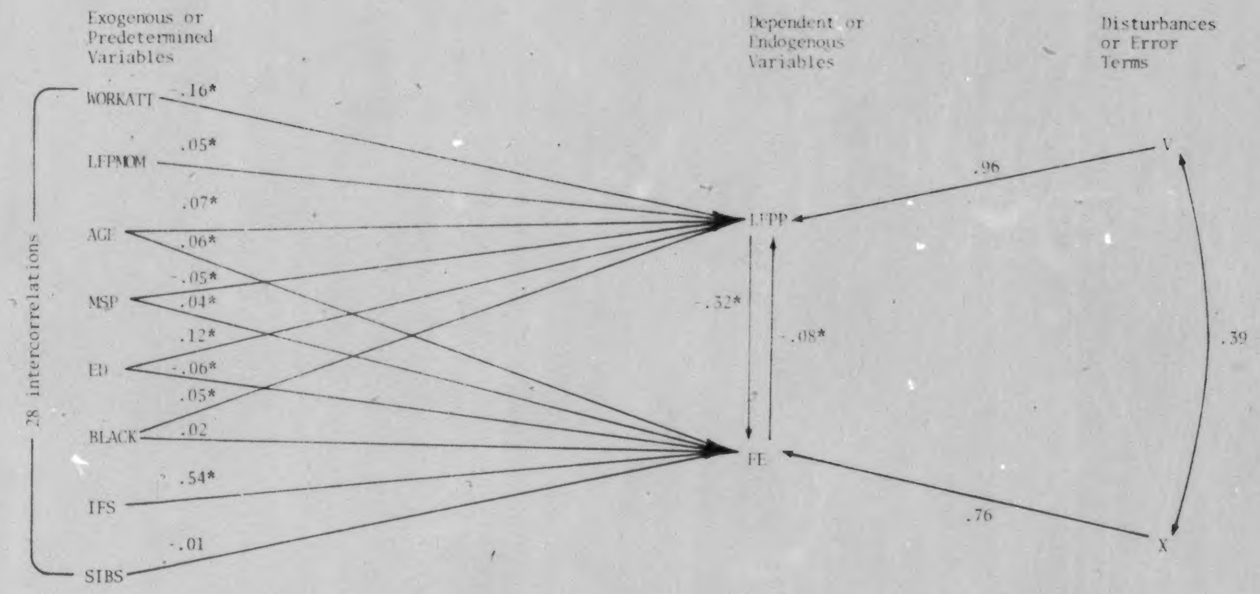
Responses were coded from one (for "like it very much") to five (for "dislike it very much"). Once again, it seems important to point out that we expect a wife's psychological propensity to participate in the labor force to be more affected by her perception of her husband's attitudes on the subject than by the husband's actual attitudes about her labor force activity. Thus, for present purposes, discrepancies between the husband's attitudes and his wife's perception of them do not seem to threaten the validity of HUSBAND'S ATTITUDES as an indicator of the effect of husband's attitudes on female labor force participation.

H.INC or Husband's Income is the respondent's report of her husband's annual income during the 12 months preceding the 1973 interview.

Having described the variables we utilize in our empirical analysis, we move on to discuss some models of women's labor force participation plans and fertility expectations.

## III. A Basic Model of Work Plans and Fertility Expectations

Figure 3.1 presents a basic model of fertility expectations (FE) and labor force participation plans (LFPP) of young women, along with parameter estimates generated from the NLS data. Looking at the model, notice that there are four classes of variables: (1) Predetermined variables with direct effects on both WORK PLANS and BIRTH EXPECTATIONS: (2) Predetermined variables with direct effects on only WORK PLANS: (3) Predetermined variables with direct effects on only BIRTH EXPECTATIONS: AND (4) The endogenous variables, WORK PLANS and BIRTH EXPECTATIONS, which have direct effects on each other. By excluding two predetermined variables from having direct


Exogenous or Predetermined Variables
Dependent or Endogenous Variables
Disturbances or Error Terms
WORKATT
LFPMOM
AGE
MSP
ED
BLACK
IFS
SIBS
28 intercorrelations
.16*
.05*
.07*
.06*
-.05*
.04*
.12*
-.06*
.05*
.02
.54*
-.01
LFPP
FE
-.32*
-.08*
V
X
.96
.76
.39

Corresponding equations:

$$\widehat{LFPP} = b_0 + b_1\ \mathrm{WORKATT} + b_2\ \mathrm{LFPMOM} + b_3\ \mathrm{AGE} + b_4\ \mathrm{MSP} + b_5\ \mathrm{ED} + b_6\ \mathrm{BLACK} + b_7\ \mathrm{FE}$$

$$\widehat{FE} = c_0 + c_1\ \mathrm{AGE} + c_2\ \mathrm{MSP} + c_3\ \mathrm{ED} + c_4\ \mathrm{BLACK} + c_5\ \mathrm{IFS} + c_6\ \mathrm{SIBS} + c_7\ \mathrm{LFPP}$$

Notes:

All variables defined in text and in Table 1. Coefficients are standardized regression coefficients. Coefficients are estimated by two-stage least squares. Residual path coefficients and correlations between disturbances are calculated by computing and correlating disturbances. Asterisk (*) indicates that coefficient is at least twice as large as its standard error.

Figure 3.1. A Basic Model of Labor Force Participation Plans and Fertility Expectations

effects on WORK PLANS, and two other variables from having direct effects on BIRTH EXPECTATIONS, we have made the equations for WORK PLANS and BIRTH EXPECTATIONS overidentified. As a result, consistent parameter estimates can be obtained by the method of two stage least squares (2SLS). Had we not excluded at least one predetermined variable from having direct effects on WORK PLANS, and at least one other predetermined variable from having direct effects on BIRTH EXPECTATIONS, it would have been impossible to have obtained consistent estimates of the model's parameters by any method, since both equations would then have been underidentified.[1] Although identification problems and simultaneous equation models like Model 1 are not commonplace in sociological analysis, they have been given quite a lot of sociological attention lately (see, for example, Duncan, Haller and Portes, 1971; Mason and Halter, 1971; Hauser, 1973; Duncan, Featherman and Duncan, 1972). Thus, it is unnecessary to treat the identification problem and simultaneous equation estimation in detail here. For an introduction to these issues, the reader is directed to Goldberger and Duncan (1973) or Johnston (1972).

It is convenient to discuss the variables in the model in the order in which we just grouped them. First, there are four predetermined variables which are allowed to have direct effects on both WORK PLANS and BIRTH EXPECTATIONS. These variables are included in the model primarily because they have been shown to affect women's labor force participation and/or fertility. Our primary concern here is the relationship between women's childbearing and labor force participation expectations, and we include AGE, MARRIED, EDUCATION, and BLACK in the basic model only to demonstrate that the relationships we find between WORK PLANS and BIRTH EXPECTATIONS are not spurious results of omitting key variables from the model. We will not discuss the effects of these variables here, as these will not concern us until later in this paper.

Next, we have the exogenous variables which determine only labor force participation plans. These variables are WORKATT (WORK ATTITUDES) and LFPMOM (a dummy variable set equal to 1 if the respondent's mother participated in the labor force when the respondent was 14 years old). Inasmuch as WORK ATTITUDES measures only attitudes about the costs and benefits of work, we have no reason to expect that it has direct causal impact on a woman's fertility. Thus, we include WORK ATTITUDES as an exogenous variable

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[1] Identification also could have been obtained by making assumptions about the correlation between V and X, the residuals. Having no substantive basis for making such assumptions here, we have refrained from doing so.

Table 3.2. 2SLS and OLS Parameter Estimates for Model 1.

| Variables | Standardized Coefficients | | | |
|---|---|---|---|---|
| | LFPP as Dependent Variable | | FE as Dependent Variable | |
| | 2SLS | OLS | 2SLS | OLS |
| WORKATT | -.16* | -.17 | a | b |
| LFPMOM | .05* | .05* | a | b |
| AGE | .07* | .07* | .06* | .04* |
| MSP | -.05* | -.05* | .04* | .05* |
| ED | .12* | .13* | -.06* | -.11* |
| BLACK | .05* | .05* | .02 | .00 |
| IFS | a | b | .54* | .56* |
| SIBS | a | b | -.01 | -.01 |
| LFPP | c | c | -.32* | -.02 |
| FE | -.08* | -.04* | c | c |
| $R^2$ | .07 | .07 | .26 | .34 |

Notes:
a) Variable excluded from this equation but included in model
b) Variable excluded from this equation.
c) Variable is dependent variable in this regression.
* Coefficient is at least twice its standard error.

in the equation for WORK PLANS, but not in the equation for BIRTH EXPECTATIONS. As expected, the path from WORK ATTITUDES to WORK PLANS has a negative coefficient, though modest in size.

Like WORK ATTITUDES, MOTHER'S WORK is not allowed to have direct effects on BIRTH EXPECTATIONS in Model 1. We expect MOTHER'S WORK to have a positive impact on WORK PLANS because we believe that a mother serves as an important role model for her daughters (Lane, 1974; Hartley, 1961). Thus we expect that a woman whose mother worked will be more likely to be a labor force participant than a woman whose mother did not hold paid employment. As expected, the coefficient for MOTHER'S WORK is positive. Though this coefficient is more than three times the size of its standard error, it is so small as to be substantively negligible. We make more of this finding later in this paper.

The third set of variables in Model 1 are the exogenous variables which have direct paths to BIRTH EXPECTATIONS but not to WORK PLANS. These variables are IDEAL FAMILY SIZE and SIBLINGS. We reason that women who have been raised with large numbers of siblings will have a taste for larger families than women who have been raised with few brothers and sisters. Inasmuch as SIBLINGS affects WORK PLANS net of other variables in the model, we expect that these effects will be mediated through the BIRTH EXPECTATIONS and/or other variables which have direct effects on WORK PLANS. Similarly, we expect that IFS (Ideal Family Size) will have direct effects on BIRTH EXPECTATIONS but that its effects on WORK PLANS will be mediated through BIRTH EXPECTATIONS and other variables with direct effects on Labor Force Participation Plans. Inasmuch as IDEAL FAMILY SIZE measures attitudes toward family size, we expect that it will have direct effects on a woman's own fertility expectations. However, because IDEAL FAMILY SIZE measures attitudes toward family size in general (rather than attitudes toward the respondent's ideal family size for herself), we expect that any effects of IDEAL FAMILY SIZE on the respondent's plans for her own labor force participation are mediated through her plans for her own fertility. Thus, our Basic Model does not allow IDEAL FAMILY SIZE to have direct effects on WORK PLANS. The reader may feel that respondents do not make a great enough distinction between "a family" and their own families, thereby making our assuptions about the relationship between IDEAL FAMILY SIZE and WORK PLANS unwarranted. Suffice it to say that we share some of these doubts, and that we investigate the consequences of altering our assumptions about IDEAL FAMILY SIZE in the discussion section of this paper. IDEAL FAMILY SIZE has a rather large coefficient of .54, but SIBLINGS has a coefficient of -.01, which is both substantively and statistically indistinguishable from zero. Apparently the effect of SIBLINGS on BIRTH EXPECTATIONS is mediated through IDEAL FAMILY

SIZE forcing it to "drop out" when ideal family size is included in the equation.[2]

Having discussed the exogenous variables in the model, we can turn to the focus of this analysis, the relationship between plans for labor force participation plans and fertility expectations. Looking at Figure 3.1, notice that the path from BIRTH EXPECTATIONS to WORK PLANS, like the path from WORK PLANS to BIRTH EXPECTATIONS, has the expected negative coefficient. However, the path from WORK PLANS to BIRTH EXPECTATIONS is four times the size of the path in the opposite direction. If the model correctly specifies the relationship between these two variables, this result implies that young women's plans for labor force participation have a much greater effect on their plans for childbearing than their plans for childbearing have on their plans for labor force participation. This finding comes as a surprise to us, especially in light of the rather modest size of previous estimates of the effect of labor force participation of women on their childbearing (see, for examples, Bumpass and Westoff, 1970, and Westoff, Potter and Sagi, 1963). We will give more attention to the implications of this finding in the discussion section of this paper. Until then, our major concern will be to produce evidence showing that this finding is correct and is not due to deficiencies in our model or method.

As a first step in describing differences between our method and previous related research, it is instructive to compare the coefficients obtained for Model 1 by 2SLS with the coefficients which would have been obtained if we estimated the same equations by the more usual ordinary least squares (OLS). Table 3.2 presents 2SLS and OLS parameter estimates for Model 1. Looking at Table 3.2 notice that the 2SLS and OLS parameter estimates are extremely similar for nearly all paths except for those between the two endogenous variables, WORK PLANS and BIRTH EXPECTATIONS. Some insight into why the OLS and 2SLS parameters differ can be seen by turning back to Figure 3.1, which presents our model in pictorial form. Looking at Figure 3.1, notice that the curved arrow between the disturbances, V and X, has a positive coefficient. The positive correlation between V and X produces both a positive correlation between the WORK PLANS and X, and a positive correlation between V and BIRTH EXPECTATIONS. These correlations between regressors and disturbances produce an upward, or positive bias in the OLS estimates of the coefficient for WORK PLANS in the equation for BIRTH EXPECTATIONS and the coefficient for BIRTH EXPECTATIONS in the equation for WORK PLANS. Simply put, this bias is caused because "In explaining (the dependent variable) OLS gives as little credit as possible to the error (residual), and as much credit as possible to the regressor. When the error and regressor are correlated, then some of the effect of the error is wrongly attributed to the regressor" (Wonnacott and Wonnacott, 1970:153). The amount of the bias can be determined approximately for large samples, and, in terms of standardized regression coefficients, is equal to the correlation between the regressor and the residual (this follows directly from Wonnacott and Wonnacott, 1970:153). We have calculated the residuals from the 2SLS estimates of Model 1, and have then calculated the correlation between the residuals and the regressors.

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[2] When IDEAL FAMILY SIZE is dropped from the Basic Model, SIBLINGS has a coefficient of .06 in the equation for BIRTH EXPECTATIONS. This coefficient is more than twice its standard error.

The correlation between V and BIRTH EXPECTATIONS is .04, implying a bias of approximately .04 in the OLS estimates. Looking at the left panel of Table 3.2, notice the difference between the OLS and 2SLS estimates of the coefficient for BIRTH EXPECTATIONS is precisely .04. The correlation between X and WORK PLANS is .33, implying a bias of approximately .33 in the OLS estimate. Looking at the right panel of Table 2, notice that the difference between the OLS and 2SLS estimates of the coefficient for WORK PLANS is .30, which is not substantially different from the estimated OLS bias of .33. Thus, if women formulate their work plans and their fertility plans simultaneously and interdependently, as we have argued, failure to use analytic methods which explicitly recognize this simultaneity and interdependence will lead researchers to grossly underestimate the effect of women's work plans on their fertility expectations.

Having discussed the problems of obtaining consistent estimates of the effects of BIRTH EXPECTATIONS and WORK PLANS on each other, we turn to an examination of the effects of marital status and husband's characteristics on the relationship between labor force participation plans and fertility expectations of young women.

## IV. Marital Status and the Relationship between WORK PLANS and BIRTH EXPECTATIONS.

A reasonable objection to our Basic Model might be that it does not give much attention to the ways in which a woman's marital status might affect the processes which lead her to develop fertility expectations and plans for labor force participation. Being married, one might argue, subjects a woman to influence by her husband, a pressure which never-married women do not face. Also, role expectations for married women differ from those of single women, and these differing expectations may affect the processes by which plans for labor force participation and fertility are developed. Further, being married subjects women to economic circumstances which are different from those of never-married women: On the one hand, the vast majority of married men work (in 1972, 94.5 per cent of the married men between 14 and 64 years of age were in the labor force. Source: computed from the U.S. Bureau of the Census, 1973: Table 57). These married men provide their wives with a source of income which single females

Table 3.3. Estimates of Basic Model Parameters, for Single Women and Women Who Are Currently Married

| Variables | Standardized Regression Coefficients | | | |
|---|---|---|---|---|
| | LFPP as Dependent Variable | | FE as Dependent Variable | |
| | Single | Presently Married | Single | Presently Married |
| WORKATT | -.17* | -.17* | a | a |
| LFPMOM | .05 | .05* | a | a |
| AGE | -.07* | .09* | -.09* | .11* |
| ED | .21* | .12* | .03 | -.05 |
| BLACK | .11* | .05* | .00 | .06* |
| IFS | a | a | .59* | .50* |
| SIBS | a | a | -.04 | .01 |
| LFPP | b | b | -.39* | -.35* |
| FE | -.11* | -.07 | b | b |
| $R^2$ | .12 | .06 | .36 | .18 |
| Number of cases | 1014 | 2199 | 1014 | 2199 |

Notes: a) Variables excluded from this equation but included in model.

b) Variable is dependent variable in this equation.

* Coefficient is at least twice its standard error.

R-squared statistics computed from correlations.

Table 3.4. Extension of basic model for women who are married with spouse present.

| Variables | Standardized Regrssion Coefficients | |
|---|---|---|
| | FE as Dependent Variable. | LFPP as Dependent Variable |
| WORKATT | a | -.17* |
| LFPMOM | a | .05* |
| AGE | .09* | .09* |
| ED | -.05 | .11* |
| BLACK | .06* | .05* |
| IFS | .50* | a |
| SIBS | .01 | a |
| LFPP | -.37* | b |
| FE | b | -.07 |
| H.ATT. | a | -.02 |
| H.INC. | .01 | .02 |
| $R^2$ | .17 | .06 |

Notes: a) Variable included in this model but not this equation.

b) Variable is dependent variable in this equation.

2199 data cases in this analysis. Parameter estimates obtained by two stages least squares.

do not have. But, on the other hand, young married women tend to have more children than never-married women, and one might expect that the pressure of supporting children would provide an additional inducement for mothers to participate in the labor force (see Oppenheimer, 1974, for an intelligent analysis of financial pressures and the family life cycle). Present purposes do not require us to untangle these effects of marriage. We merely point out that there is ample reason to suspect that marital status might alter the relationship between labor force participation plans and fertility expectations of young women.

In order to allow for differences between the processes determining WORK PLANS and BIRTH EXPECTATIONS of single and married women, we estimated the Basic Model shown in Figure 3.1 separately for respondents who were single (i.e. never-married) and respondents who were married (and neither separated nor divorced) in 1973. We dropped the variable MSP (a dummy indicating whether or not the respondent was presently married) from the model, since marital status does not vary within each of the two groups for which we now separately fit the Basic Model. The results of our calculations are shown in Table 3.3. Looking at the rows in Table 3.3 showing the coefficients for WORK PLANS and BIRTH EXPECTATIONS, notice that the effect of these variables on each other is virtually the same for single and spouse-present married females.

In Table 3.4 we estimate a model which allows a woman's plans for labor force participation (WORK PLANS) to be caused by two characteristics of her husband. The first of these characteristics is the husband's income (H.INC). The second characteristic is the husband's attitude toward labor force participation by the respondent (H.ATT). HUSBAND'S ATTITUDES might better be called "wife's perception of husband's attitudes," since it is obtained by asking the married respondents about their husband's attitudes toward labor force participation by them. However, a husband's attitudes can effect his wife's behavior only if he makes them known to her. Thus, at least on the face of things, it seems that HUSBAND'S ATTITUDES serves current purposes adequately, whether it measures the husband's "true" attitude or just the wife's perception of the husband's attitude. Looking at the right panel of Table 3.4 notice that HUSBAND'S INCOME and HUSBAND'S ATTITUDES both have negligible effects on labor force participation plans (LFPP). Also notice that the coefficient for BIRTH EXPECTATIONS (fertility expectations) remains virtually unchanged when HUSBAND'S ATTITUDES and HUSBAND'S INCOME are added to the equation for WORK PLANS. Before interpreting these results, we examine the effects of husband's income on wife's fertility expectations. The left panel of Table 3.4 shows that the coefficient for HUSBAND'S INCOME is substantively negligible and is less than twice the size of its standard error, making it statistically insignificant as well. We have allowed HUSBAND'S ATTITUDES to have direct effects on WORK PLANS because HUSBAND'S ATTITUDES measures the husband's attitude toward his wife's labor force participation, but not his attitudes regarding the number of children he wants her to bear.

Our findings concerning the effects of husband's characteristics on respondent's fertility expectations and labor force participation plans can be summarized as follows. First, adding HUSBAND'S ATTITUDES and HUSBAND'S INCOME to the Basic Model does not alter our earlier conclusion that labor force participation plans have strong effects on fertility expectations, and that fertility expectations have rather small effects on labor force participation plans. Second, adding HUSBAND'S ATTITUDES and HUSBAND'S INCOME to the model suggests that a husband's present income has negligible impact on his wife's plans for future childbearing and future labor force participation. While this finding is surprising, it does not preclude the possibility that the wife's actual or desired labor force participation at age 35 will be strongly affected by her husband's income at that time. Further, it is possible that husband's attitude toward wife's labor force participation change over time, making it possible that husband's present attitudes have a weak impact on wife's future labor force participation, but that the husband's attitudes at the future time will exert a strong influence on the wife's probability of labor force participation then. We leave these speculations to be tested elsewhere, since they are tangential to the main concerns of this paper.

We introduced HUSBAND'S ATTITUDES and HUSBAND'S INCOME into our model in order to determine whether adding these variables altered the basic relationship between women's plans for future labor force participation and plans for childbearing. Our results seem to indicate that addition of these variables to the Basic Model does not drastically change our previous findings. Having explicated our Basic Model and some elaborations of it, we now turn to a discussion of our findings and their theoretical, methodological, and policy-oriented implications for research on labor force participation and childbearing.

## DISCUSSION

### 1. On the interpretation of nonrecursive models.

Throughout this paper we have argued that young women develop their labor force participation plans and fertility expectations simultaneously and interdependently. Another way to describe this simultaneous interdependence is to say that WORK PLANS and BIRTH EXPECTATIONS have reciprocal causal effects on each other. While the notions of simultaneity and reciprocal causation are not new to sociology, the use of statistical models which embody these concepts is novel enough to warrant some discussion of their interpretation. The following points seem to be in order:

First, it is important that the model presented in Figure 3.1 be interpreted as a set of simultaneous relationships. Perhaps it will make our models clearer to say that they do not represent processes in which WORK PLANS changes BIRTH EXPECTATIONS, following which the new value of BIRTH EXPECTATIONS then changes WORK PLANS and so on ad infinitum. Rather, our models embody a set of relationships in which both WORK PLANS and BIRTH EXPECTATIONS affect each other at the same time, and their values are determined simultaneously, both by each other and by various other factors. Thus, our model assumes that young women formulate their fertility expectations at the same time that they formulate their labor force participation plans, and that these plans and expectations depend on each other. The mathematical formulation of this relation is simply a pair of simultaneous equations, one predicting WORK PLANS and the other predicting BIRTH EXPECTATIONS. The pictorial representation of these simultaneous equations is the path diagram shown in Figure 3.1.

A second methodological point which bears mentioning is that our findings would seem to have important implications for statistical studies which are concerned with only the effects of labor force participation plans on fertility expectations, rather than the effects of both variables on each other. If our models are convincing, we have demonstrated that ordinary least squares regression provides seriously biased estimates of the effects of labor force participation plans of young women on their fertility expectations. We have discovered this bias in the course of analyzing the reciprocal effects of WORK PLANS and BIRTH EXPECTATIONS on each other. But this bias still would have appeared if we did not explicitly calculate the equation in which BIRTH EXPECTATIONS affects WORK PLANS and had used OLS to estimate the equation for BIRTH EXPECTATIONS. In short, our findings suggest that other researchers who are investigating the effects of labor force participation plans on fertility expectations would be well advised to investigate the possibility that the effects of labor force participation plans are underestimated by OLS due to simultaneous reciprocal effects of future work plans and fertility plans on each other. We suspect that this bias would also appear in OLS analyses of actual fertility and labor force participation.[3]

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[3] However, it also seems worth pointing out that we found only a small bias in OLS estimates for the effect of fertility expectations on labor force participation plans.

## 2. The impact of fertility expectations and labor force participation plans on each other.

Until now, our analysis has been based on the standardized regression coefficients obtained by 2SLS estimation of our models. The standardized regression coefficients have the advantage of allowing us to compare the "importance" of one variable in the model to the "importance" of the others. The standardized coefficients have shown that WORK PLANS has a much larger effect on BIRTH EXPECTATIONS than BIRTH EXPECTATIONS has on WORK PLANS. That is, the Basic Model indicates that while a change of one standard deviation in WORK PLANS produces a change of -.32 standard deviations in BIRTH EXPECTATIONS, a change of one standard deviation in BIRTH EXPECTATIONS produces a change of only -.08 standard deviations in WORK PLANS. The finding that WORK PLANS has a substantial impact on BIRTH EXPECTATIONS and that BIRTH EXPECTATIONS has only a small impact on WORK PLANS is the most important result of our analysis.

However, women number their children in integers, not standard deviations, and WORK PLANS can in fact assume only the values one or zero. So it seems worthwhile to convert the coefficients for WORK PLANS and BIRTH EXPECTATIONS back to their natural metrics and then compare them again. Table 3.5 presents the parameters of the Basic Model in natural metric form. Looking at the right panel of Table 3.5, notice that the metric coefficient for WORK PLANS is -.767 when the model is estimated for all women. That is, holding constant the effects of other variables in the Basic Model, plans to participate in the labor force at age 35 decrease a woman's expected family size by an average of .767 children below the number of children she would plan to bear if she did not expect to participate in the labor force at age 35. Inasmuch as the average expected family size of women in the NLS sample is 2.4 children, it seems quite safe to say that labor force participation plans have a rather large effect on the fertility expectations of young women.

Table 3.5 also presents the unstandardized coefficients of WORK PLANS for single women and for currently married females. Though they differ slightly, these coefficients can be regarded as virtually identical, inasmuch as the difference between them is not significantly different from zero ($p < .05$). Our finding that the effect of WORK PLANS on BIRTH EXPECTATIONS does not vary with young women's marital status would seem to be inconsistent with the hypothesis that most women do not formulate their career and fertility plans until marriage (see Tien, 1967). Apparently the effects of fertility expectations and labor force participation plans on each other is the same for single and married females. Indeed, our findings are consistent with the hypothesis that women begin making decisions about childbearing and fertility before they are married, and that marriage does not alter the relationship between a woman's expected fertility and her desires for labor force participation at age 35.

Interpretation of the metric form of the equation for WORK PLANS is a bit more complex than interpretation of the metric form of the equation for BIRTH EXPECTATIONS. When the dependent variable in a regression equation is a zero-one dummy which indicates the presence or absence of some trait, regression estimates of the value of the dummy variable can be interpreted as estimates of the probability that the trait is present (Goldberger, 1964).[4] When the probability interpretation is attached to a dummy variable regression, the unstandardized partial regression coefficients indicate the net effects of the regressors on the probability that the trait is present. In the equation for WORK PLANS, having plans to participate in the labor force is the trait whose probability is predicted. Looking at Table 3.5, notice that the unstandardized coefficient for BIRTH EXPECTATIONS is -.032 when the model is estimated for all women. This coefficient indicates that each child expected by a woman lowers her probability of planning to participate in the labor force 3.2 per cent. Thus, while the coefficient for BIRTH EXPECTATIONS is statistically significant in the Basic Model, the fertility expectations of young women seem to have a rather small impact on their plans for labor force participation at age 35. Similar findings obtain when the Basic Model is estimated separately for single and presently married women.

Past research has shown that the mothers of young children under 6 years of age are less likely to participate in the labor force than mothers of older children (Sweet, 1968 and Cain, 1966). While the NLS data do not permit us to calculate the age distribution of a woman's expected children when she is 35 years old, it is possible to show that our finding of a small coefficient for BIRTH EXPECTATIONS does not contradict these past findings. The women in the NLS data are representative of the U.S. birth cohort of 1944-54. The mean age at first birth was projected for these women by Norton (1973) to be about age 22. Thus, allowing an average of two years between births, these women could have four children apiece and their youngest child would have an average age of 7 years by the time the women became 35 years old. Allowing an average of three years between births, these women could have 3 children apiece and their youngest child would also have an average age of 7 years by the time the women became 35 years old. Obviously all women do not have their first child at the age of 22, and many births are spaced more than three years apart. But, inasmuch as the mean total expected fertility of women in the NLS sample is 2.4 children, it seems reasonable to believe that the expected children of most of the women in our sample will be school-aged when the NLS respondents reach the age of 35.

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[4] Subject to the condition that the regression equation produces no (or few) probability estimates greater than one or less than zero.

Table 3.5. Estimates of Basic Model Parameters in Metric (Unstandardized) Form, For All Women, Presently Married Women, and Single (Never Married) Women

| Variables | Unstandardized Regression Coefficients | | | | | |
|---|---|---|---|---|---|---|
| | LFPP as Dependent Variable | | | FE as Dependent Variable | | |
| | All Women | Single Women | Presently Married Women | All Women | Single Women | Presently Married Women |
| WORKATT | -.015 | -.016 | -.016 | a | a | a |
| LFPMOM | .055 | .048 | .052 | a | a | a |
| AGE | .011 | .013 | .015 | .022 | -.046 | .041 |
| MSP | -.048 | c | c | .092 | c | c |
| ED | .029 | .055 | .027 | -.033 | -.023 | -.027 |
| BLACK | .090 | .157 | .104 | .092 | .020 | .273 |
| IFS | a | a | a | .649 | .678 | .613 |
| SIBS | a | a | a | .005 | -.025 | .003 |
| LFPP | b | b | b | .767 | -1.04 | -.799 |
| FE | .032 | .040 | .029 | b | b | b |

Notes: a) Excluded from this equation.
b) Dependent variable in this equation.
c) Marital status excluded from equation when model is estimated for single women only and when model is estimated for presently married women only.

d) All variables defined in text and in Table 1.

If childbearing reduces female labor force participation primarily by putting intense pressure on mothers to stay home with their pre-school aged children, our finding of negligible effects of BIRTH EXPECTATIONS on WORK PLANS might well be due to the high probability that women in our sample expect that their children will be of school age by the time the respondents themselves are 35 years old. That explanation seems plausible, and it fits with past analyses of female labor force participation. However, that reasoning does not explain the stubstantial negative effect of labor force participation plans on fertility expectations. Two explanations of the effects of WORK PLANS on BIRTH EXPECTATIONS seem plausible to us. The first explanation is that women who have career interests recognize that their careers depend on their ability to offer employers useful skills obtained through specialized training and/or on-the-job experience. These women risk substantial depreciation of their skills (or "human capital") through disuse and obsolescence if they withdraw from the labor force for a considerable period to care for young children. For the woman who does not work when her children are below school age, skill depreciation can be minimized by having few children (see Ross, 1973). Thus, the negative effect of WORK PLANS on BIRTH EXPECTATIONS could be produced by the woman's desire to limit the adverse effect of motherhood on her career. The second plausible explanation for the negative effect of labor force participation plans on fertility expectations is that a career gives a woman interests which compete with her children for her time, and which lead her to find satisfactions on the job which substitute somewhat for the satisfactions of motherhood and childbearing (Hoffman, 1974). According to this explanation, the personal fulfillment that a woman gets from working causes her to need fewer children to feel productive and fullfilled.

At the start of this paper we summarized a substantial body of previous research dealing with the relationship between female labor force participation and fertility. Our summary led us to conclude that while there is wide-spread consensus that a woman's number of children and labor force activity are negatively correlated, there is virtually no research which allows one to choose among the several causal structures which could produce the inverse relationship between completed family size and childbearing. Inasmuch as effective birth control techniques are widely used by American women, and because labor force participation of married females seems to depend heavily on their taste for paid employment, we reasoned that it would be a substantial advance in understanding the relationship between fertility and labor force activity if we could determine the causal relationship between young women's expected future childbearing and anticipated future labor force participation. In order to investigate the causal link between fertility expectations and labor force participation plans of young women, we estimated a statistical model which could produce findings consistent with each of four hypotheses about the causal link between young women's labor force participation plans (WORK PLANS) and fertility expectations (BIRTH EXPECTATIONS). These hypotheses are:

1. BIRTH EXPECTATIONS causes WORK PLANS. That is, women formulate labor force participation plans partly on the basis of their fertility expectations.

2. WORK PLANS causes BIRTH EXPECTATIONS. That is, women formulate their fertility expectations partly on the basis of their labor force participation plans.

3. BIRTH EXPECTATIONS and WORK PLANS both cause each other.

4. The correlation between BIRTH EXPECTATIONS and WORK PLANS results from their common antecedent causes rather than from a direct causal link between them.

Insofar as we have included all relevant antecedent causes of young women's fertility expectations and labor force participation plans, our results strongly indicate that the relationship between BIRTH EXPECTATIONS and WORK PLANS is not merely an artifact of their common causes. We consistently found a substantial and statistically significant effect of WORK PLANS on BIRTH EXPECTATIONS. This effect remained substantial in size when separate models were estimated for presently married and for single women, and when married respondent's reports of their husband's income and husband's attitudes toward the respondent's labor force participation were added to the Basic Model. It can always be argued that we have left some crucial variable out of this analysis, and that the effect of WORK PLANS on BIRTH EXPECTATIONS would disappear if that variable were added to our model. However, our model allows the respondent's race, education, age, marital status, and (in the case of married women) husband's income to affect both WORK PLANS and BIRTH EXPECTATIONS. With the effects of these common antecedents held constant, the effects of WORK PLANS on BIRTH EXPECTATIONS remain substantial, leading us to believe that the negative path from WORK PLANS to BIRTH EXPECTATIONS is not spurious. Our results are wholly inconsistent with Mincer's (1963:78) argument in favor of the fourth hypothesis.

Inasmuch as we find a small negative effect of BIRTH EXPECTATIONS on WORK PLANS, as well as a powerful negative effect of WORK PLANS on BIRTH EXPECTATIONS, our analyses support hypotheses one through three. However, it seems important to stress that the effects of BIRTH EXPECTATIONS on WORK PLANS are surprisingly small.

Our finding that the effects of WORK PLANS and BIRTH EXPECTATIONS on each other do not vary much by marital status would seem to suggest that women do not form their childbearing and labor force participation plans at marriage, as Tien (1966) has suggested. Rather, it would appear from our analysis that childbearing and labor force participation plans tend to be formed before marriage, and that the relationship between WORK PLANS and BIRTH EXPECTATIONS is roughly the same for married young women as it is for single young women. This also seems to be an important finding of the present study.

In conclusion, we return to the question posed several years ago by Bumpass and Westoff (1970:95), which sums up the ambiguity in past research on fertility and female labor force participation. "Do women limit their fertility in order to have time to pursue their non-family-oriented interests, or do women work if their fertility permits them to do so?" Our analysis permit a cautious answer to Bumpass and Westoff, and our answer is, Yes, women do appear to limit their fertility plans to accommodate their plans to participate in the labor force, and Yes, women's fertility expectations do seem to affect their plans for labor force participation. But while the effect of fertility expectations on labor force participation plans would appear to be small, the effect of labor force participation plans on fertility expectations seems to be rather substantial.

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# CHAPTER IV

# AGE AND THE RELATIONSHIP BETWEEN YOUNG WOMEN'S PLANS FOR CHILDBEARING AND EMPLOYMENT

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This paper reports an investigation of the effects of a woman's age on the relationship between the number of children she expects to bear in her lifetime and her long-term plans for labor force participation. The motivation to study women's plans for childbearing and paid employment comes from observation of the fact that American women now exert a great deal of control over both their fertility and their decision to enter or remain outside of the labor force (see, for examples or reviews of examples, Bowen and Finegan, 1969; Sweet, 1968; Ridley, 1958; Bumpass and Westoff, 1970). If women control their fertility and labor force participation, then understanding the relationship between their plans for paid employment and their plans for childbearing is a prerequisite to understanding their actual fertility and labor force activity.

Our motivation to study the effects of a woman's age on the relationship between the number of children she expects to bear and her long-range plans for labor force participation comes from two sources, one theoretical and the other policy-oriented. On the theoretical side, it is clear that an adequate understanding of the relationship between labor force participation plans and fertility expectations must include knowledge of the etiology of that relationship. A number of past studies have laid great stress on the time at which fertility and employment plans become linked, and certain analysts have argued that the timing of various events in a woman's life prior to childbearing has important consequences for the development of her tastes for employment and motherhood (e.g. Lipman-Blumen, 1972; Rossi, 1968; Presser, 1971; Bumpass, 1969). Tien (1967) and Willis (1973) have argued that labor force participation plans and fertility expectations are not made until marriage; and Blake (1969) presents data which suggest that, by the end of high school, girls have already developed interrelated tastes and long range plans for employment and fertility. For the moment, conflicts between Blake, Tien, and others are not critical. Rather, the key points to be culled from these studies are that temporal aspects of the development of the relationship between labor force participation plans and fertility expectations have been widely recognized as an important theoretical issue, and, to the best of our knowledge, there is no rigorous empirical analysis of the effects of women's age on this relationship. This paper is written to help fill this gap in the research literature.

Our second motivation to study the effect of women's age on the relationship between their labor force participation plans and fertility expectations derives from recent proposals to manipulate the birth rate in industrialized countries by motivating more women to plan to be active labor force participants throughout their lives (see, e.g. Blake, 1969; Davis, 1967; and Hoffman and Nye, 1974). These fertility reduction schemes would seem to offer a technology for lowering fertility even in nations where effective birth control is already widely used, since they operate by altering women's motivation to bear children rather than their ability to avoid doing so. However, the efficacy of this strategy depends entirely upon the existence of a strong negative effect of labor force participation plans on the fertility expectations of women who are *in the prime childbearing years*. Thus, for example, if a substantial inverse effect of labor force participation plans on fertility expectations does not develop until women are, say, 25 years old, then women who start their childbearing before they are 25 would be unlikely to limit their fertility to accommodate their labor force participation plans (though their work plans might make them subsequently regret their earlier fertility). So, the research reported here is also offered on a step toward evaluating some rather hard-nosed suggestions for implementing population policy.

Before reporting our findings, we review some of the existing literature on which our research builds and derive the key hypothesis that we test in our empirical analysis. Following that, we give a brief description of our data and the models we employ in our statistical analysis. And, finally, we report our findings and discuss their theoretical and policy implications.

## I. A Hypothesis about the Effects of Age on the Relationship Between Labor Force Participation Plans and Fertility Expectations

That employment and childrearing are competing activities is demonstrated by the wide variety of conditions under which they are negatively related. Women who have large families are less likely at any point to be in the labor force and tend to have worked a smaller proportion of their lives than women with fewer children (Sweet, 1968; Kupinsky, 1971; Mason, 1974). Employed women usually have smaller family size expectations and ideals than their non-employed counterparts (Pratt and Whelpton, 1956; Ridley, 1958); and females who plan to be working at some time in the future plan to have fewer children than women with no such intentions to work (Whelpton, *et al*., 1966; Ryder and Westoff, 1971).

More recent data suggests the same pattern: In 1974, 30 percent of the married, husband-present 25 to 34 year-old mothers with children under three years of age were in the labor force; in that same year, 78 percent of the childless husband-present married women in that same age group were labor force participants (U.S. Department of Labor, Special Labor Force Report 173, 1975:62).

The sheer difficulty of combining the roles of employee and mother suggests reasons for the strong, negative association between childbearing and labor force participation. Employed mothers must arrange and pay for childcare during the hours that they are on the job, and upon returning home from work, they tend to find themselves with a full complement of household duties to perform. For example, when hours spent on paid employment, childcare, and home work are added up, employed women work nearly twice as many hours per week as the housewife with young children or the childless wife (Vanek, 1974). Thus, for the woman who wants or merely expects to be employed after childbearing, having fewer children than she might otherwise desire offers an obvious rational strategy for coping with the combined demands of childrearing and employment.

While limitations of fertility can serve as a strategy for minimizing the work load of women who plan to be employed after childbearing, recent research on women's careers also suggests that fertility limitation may serve as a rational strategy for maximizing the quality of a woman's post-childbearing employment. That is, when a woman interrupts her labor force participation in order to bear and raise children, the skills and knowledge she uses on the job become obsolete, and/or forgotten through disuse. As these skills and knowledge (her human capital) depreciate, the woman becomes less valuable to employers, and the wages she can earn and, possibly, other desirable features of the jobs she can command deteriorate (for a more complete statement of this argument, see Ross, 1973; and Mincer and Polacheck, 1974). But the fewer children a woman bears, the less time she must take out of the labor force to raise her children to an age where they can be left to the care of others while the mother is at work, other things being equal. Thus, a woman who plans to be employed after childbearing might rationally plan to limit her childrearing-related interruptions in labor force participation by limiting the number of children she bears, and thereby minimize the extent to which this childbearing-related interruption degrades the quality of her employment after childbearing.

Although limiting fertility might serve as a rational strategy for women to reduce the adverse effects of their childcare duties on the quality of their employment following childbearing, women are likely to follow such a strategy only to the extent to which they are aware of the deleterious effect of labor force participation interruptions on the quality of post-interruption employment. In the last decade it has become quite apparent that accurate information about wages, the availability of jobs, and other labor market conditions is unevenly distributed, and that large classes of workers do not have the information necessary for them to make optimal work-related decisions (see, for examples, Gordon, 1972; McCall, 1970; Rees and Shultz, 1970). Building on these past findings, we suggest that women learn about the workings of the labor market as they age, and that their information about the effects of interruptions in labor force participation improves as they pass through their late teens and 20's. In particular, we suggest that as women grow older, they increasingly realize that their future satisfactions from employment are likely to be improved if they limit the number of children they plan to bear. That is, women become increasingly aware that (1) their childcare responsibilities will cause them to interrupt their labor force participation, (2) employment interruptions reduce their employability and wage potential, and (3) that they can reduce the length of their child-care-related employment hiatus by reducing the number of children that they bear. Thus, we hypothesize that the effect of women's labor force participation plans on their fertility expectations becomes increasingly negative as they age. We call this hypothesis the Learning Hypothesis, and the remainder of this paper is devoted to evaluating its worth as an explanation of the effect of women's age on the relationship between their labor force participation plans and fertility expectations.

## II. Data and Method

The data and variables utilized in this paper are described in detail in an earlier chapter of this report by Waite and Stolzenberg. In the interest of brevity, we will not duplicate that description here, although we do reproduce a set of brief descriptions of variables used in table 4.1. However, certain matters concerning the relationship between labor force participation plans and fertility expectations are so important that they bear repeating here. These issues concern the causal relationship between a woman's plans for labor force participation at the age of 35 (LFPP) and the number of children she expects to bear in her lifetime, her fertility expectations (FE). A substantial number of researchers have suggested that women's fertility affects their likelihood of labor force participation (e.g. Sweet, 1968; Cain, 1966; Bowen and Finegan, 1969; and Cohen, Rea and Lerman, 1970). Other analysts have argued that labor force participation exerts a negative effect on the number of children that women want, expect, have and consider ideal (e.g. Pratt and Whelpton, 1956; Ridley, 1958; Whelpton, Campbell and Patterson, 1966; Kupinsky, 1971; and Mason, 1974). And others have argued that preferences for employment and childbearing both affect each other (Blake, 1970; Terry, 1974).

In general, researchers who have argued that labor force participation affects fertility have not suggested that causation does not run

Table 4.1. Brief definitions, means and standard deviations of variables

| Variable Symbol | Variable Description | Mean | Standard Deviation |
|---|---|---|---|
| LFPP | Plans for labor force participation at age 35 (1 = plan to be employed; 0 = not sure or plan to be out of labor force) | .4844 | .4982 |
| FE | Fertility expectations (total number of children which respondent plans to have in her lifetime) | 2.3679 | 1.2035 |
| SIB | Respondent's number of siblings | 3.0765 | 2.289 |
| IFS | Ideal family size (number of children that respondent considers "ideal" for a family) | | |
| BLACK | Respondent's race (1 = Negro; 0 = nonNegro) | .0948 | 0.239 |
| ED | Respondent's number of years of schooling completed | 12.740 | 2.1138 |
| MSP | Marital status (1 = married; 0 = not presently married, or married but presently separated) | .64644 | .47814 |
| AGE | Age in years at time of 1973 interview | 23.745 | 3.1288 |
| LFPMOM | Labor force participation of respondent's mother when respondent was 14 years old (1 = mother was in labor force; 0 = mother was not in labor force) | .3715 | .48327 |
| WORKATT | Work attitudes (9-question scale of respondent's attitudes regarding the benefits and costs of labor force participation by married women) | 22.489 | 5.427 |
| H.ATT | Respondent's report of husband's approval or disapproval of her actual or possible labor force participation at present time | 2.531 | 1.7245 |
| H.INC | Husband's annual income in 12 months preceding 1973 interview | 8894* | 5922* |

Notes: *Means and standard deviations for H.ATT and H.INC are given for presently married women only. All other means and standard deviations in this table are computed from the total sample.

N = 3589 weighted data cases (2199 weighted data cases for presently married women) with no "missing" data values on any of the above variables.

in the opposite direction, and analysts who have suggested that fertility is a cause of labor force participation have not ruled out the possibility that labor force participation also affects fertility. Perhaps the most sophisticated hypotheses on this subject are those that suggest that women's preferences for employment and childbearing both affect each other (e.g. Blake, 1970; Terry, 1974). Thus, on the basis of past findings alone there is substantial reason to suspect that the relationship between labor force participation plans and fertility expectations is reciprocal. As we demonstrated empirically in the earlier chapter by Waite and Stolzenberg in this report, when causation is reciprocal, failure to use statistical methods appropriate for simultaneous equation models is likely to produce seriously biased parameter estimates and invalid tests of significance; our earlier analysis showed that this bias is quite large in the present case and that simultaneous equation methods are necessary to properly assess the impact of labor force participation plans on fertility expectations. Inasmuch as we have already constructed a simultaneous equation model of labor force participation plans and fertility expectations in our earlier chapter of this report, an appropriate strategy in assessing the effect of age on the WORK PLANS-FERTILITY EXPECTATIONS relationship seems to be to estimate our Basic Model from the previous chapter separately for women in each of several different age groups. Age differences in the effect of WORK PLANS on FERTILITY EXPECTATIONS will be readily apparent when results of these age-specific computations are examined. We now turn to an examination of those computations.

## III. Age and the Relationship Between Labor Force Participation Plans and Fertility Expectations

In order to investigate the effects of a woman's age on the relationship between her fertility expectations and labor force participation plans, we estimated the parameters of our Basic Model separately for women in five age categories: 19 to 20 years old, 21 and 22, 23 and 24, 25 and 26, and 27-29 years of age. The means, standard deviations and correlation matrices for these groups are provided for reference in tables A-11 to A-15 of the appendix. However, inasmuch as these regressions provided some 70 metric coefficients, 70 standardized coefficients, 70 standard errors, and 10 R-squared statistics, our discussion of these results will be facilitated by presenting only the coefficients of particular interest in the text of this article. Turn to table 4.2, which presents the metric coefficients for WORK PLANS in the equation for FERTILITY EXPECTATIONS by respondents' age. Looking at the coefficients for WORK PLANS, notice that they are all negative and that they increase in absolute value rather steadily as age increases. This strictly monotonically decreasing relationship between age and WORK PLANS is shown in figure 4.1. In that figure we have plotted the metric coefficient of WORK PLANS for each age group against the age of the group. Two features of the graph are striking: First, the difference between the coefficient for 19-20-year-olds and the coefficient for 27-29-year-olds is

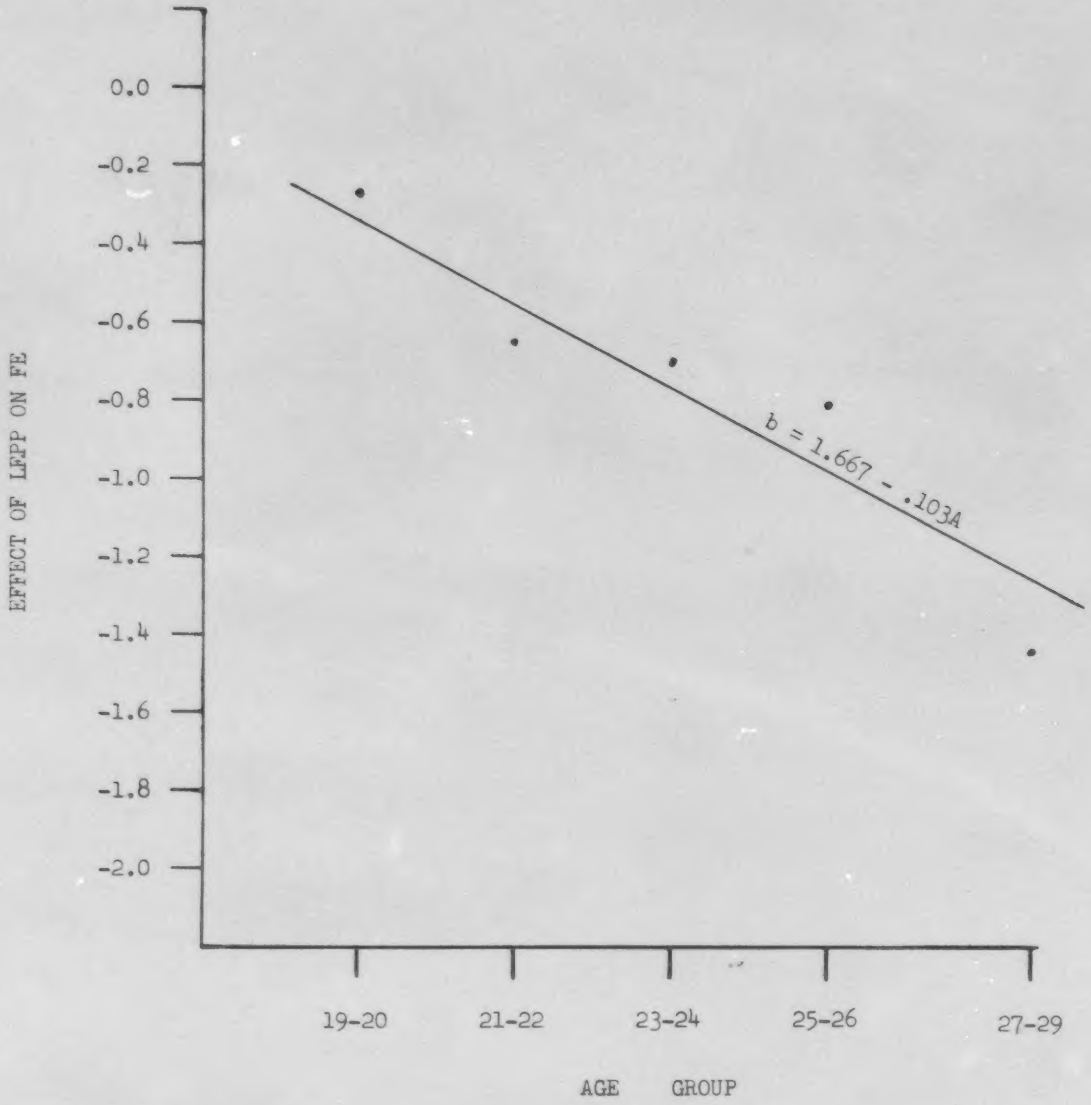
Table 4.2. Net Effects of Labor Force Participation Plans (LFPP) on Fertility Expectations (FE), by Age Group, with Corresponding Multiple R-Squared Statistics[a]

| Age group | Partial Regression coefficients[b] | | $R^2$ for equation | N |
|---|---|---|---|---|
| | Metric (Unstandardized) coefficients | Beta (Standardized) coefficients | | |
| 19-20 years old... | -.278<br>(.422) | -.111<br>(.168) | .430 | 663 |
| 21-22 years old... | -.646<br>(.290) | -.292<br>(.131) | .273 | 739 |
| 23-24 years old... | -.691<br>(.413) | -.308<br>(.184) | .295 | 682 |
| 25-26 years old... | -.804<br>(.475) | -.351<br>(.207) | .123 | 686 |
| 27-29 years old... | -1.439<br>(.627) | -.540<br>(.235) | .037 | 819 |

Notes: [a] All variables defined in text and in table 4.1.

[b] These are partial regression coefficients estimated by the method of two-stage least squares. The statistics reported in this table were obtained by estimating the Basic Model described in figure 4.1 separately for women of different ages. Standard errors of coefficients are shown in parentheses below corresponding coefficients.

Figure 4.1. Unstandardized (Metric) Effect of Labor Force Participation Plans (LFPP) on Fertility Expectations (FE), by Age Group, with Generalized Least Squares Regression Line Fitted to Plotted Points



substantial. For the youngest group, the coefficient is about -.28, indicating that when the effects of other variables in the Basic Model are held constant, women's plans to participate in the labor force at age 35 decrease their expected family size by an average of .28 children. For the oldest age group, the coefficient for WORK PLANS is about -1.44, more than five times as large as the effect of WORK PLANS in the youngest group. Thus, for 27-29-year-old women, plans to participate in the labor force at age 35 decrease expected family size by an average of 1.44 children, net of other factors included in the equation for FERTILITY EXPECTATIONS. Inasmuch as the 27-29-year-old women in the NLS sample expected to bear an average of 2.5 children in their lifetime, the estimated effect of WORK PLANS on the expected fertility of these women reasonably can be regarded as enormous.

The second striking feature of figure 4.1 is the linearity of the relationship between women's age and the coefficient for WORK PLANS. Notice how closely the points on the graph conform to the straight line fitted to them. The zero-order correlation between age and the coefficient for WORK PLANS is -.955 and is significantly different from zero at the 2.5 percent level (F=30.75). This high correlation indicates that the relationship between age and the coefficient for WORK PLANS is essentially linear--with a straight line fit of this relationship, age explains 91.1 percent $(=(-.955)^2)$ of the variance in the coefficient for WORK PLANS. We fitted a straight line to the graph in figure 4.1 by generalized least squares regression,[1] obtaining the following parameter estimates (where b is the coefficient of WORK PLANS):

$$b = 1.963 - 0.1154 \text{ Age} \qquad R^2 = .9111 \qquad (1)$$

According to the regression results shown in equation (1), the effect

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[1] The coefficients of WORK PLANS in the different age groups have different standard errors. Thus the ordinary least squares assumption of homoscedasticity is violated in our estimation of the parameters of equation (1). This problem can be overcome by using the inverses of the squared standard errors of the coefficients for WORK PLANS as estimates of the main diagonal of the variance covariance matrix of the residuals in a generalized least squares (GLS) regression of b on age. Since the coefficients for WORK PLANS were estimated from disjoint subsets of the NLS sample, the off-diagonal elements of the variance covariance matrix of the residuals are all zero. Following this procedure we obtain the following GLS regression of b on Age:

$$b = 1.6666 - .1033 \text{ Age} \qquad R^2 = .862$$

The F statistic for the GLS regression is 18.66, indicating that the hypothesis of "no relationship" between age and the coefficient for WORK PLANS can be rejected at the 2.5 percent significance level.

of WORK PLANS on FERTILITY EXPECTATIONS changes by -.1154 expected children per year of age.

The strong relationship between age and the effect of labor force participation plans on fertility expectations suggests that our Basic Model should be revised to take account of the relationship between a woman's age and her fertility expectations. The Basic Model was altered to allow the effect of WORK PLANS on FERTILITY EXPECTATIONS to vary by age. The method which this was done and the results of this analysis are presented in the appendix to this chapter. Allowing the effect of WORK PLANS on FERTILITY EXPECTATIONS to vary with the age of the woman was found to substantially increase the explanatory power of those work plans. The substantive interpretation of the relationship between age and the effect of plans for work on intended family size will now be discussed.

The Learning Hypothesis, presented earlier in this paper, states that (1) women tend to leave the labor force when they have a child, (2) this hiatus in women's job histories caused by demands of childbearing and rearing reduces their later employability and earning power because their job-related skills become outdated and rusty from disuse, (3) the larger a woman's family the lower are the net gains from her employment since the costs of replacing the goods and services she would produce at home increase with the number of children present, (4) women are aware of these facts and as a result those who plan to work for that reason plan to have fewer children than women with no intentions to work later in their lives. By having two rather than three children, for example, those who plan to work later reduce the amount of time that they are out of the labor force to bear and raise children and minimize the child-related costs of their employment, and (5) as women get older they learn, from either experience or observation, about the workings of the labor market and the demands of motherhood. They increasingly realize that the rewards of their employment are likely to be greater if they have a small rather than a large family. Women who do not plan to hold a job later in their lives do not have this restraint on their childbearing, although they may have others. Thus as women gain in experience, first or second-hand, with market work and childbearing, the negative relationship between their plans for these becomes stronger.

Unfortunately, the NLS surveys of young women do not contain questions designed to determine young women's ideas about the effects of labor force participation interruptions on their employability and earning power. Thus it is not possible to directly test proposition (5).[2] However, we can provide some indirect support for our reasoning by showing that certain plausible alternative explanations of our findings are not true. We will consider three of these alternatives: First we examine the possibility that our findings are caused by cohort differences in sex role attitudes rather than age differences in knowledge of factors affecting employability and earning power as we have suggested. Second we consider the hypothesis that our findings are a statistical artifact of the correlation between women's age and their uncertainty about their future childbearing. And, third, we will address ourselves to the possibility that we are mistaking the effects of women's life cycle stage for the effects of their age on the relationship between WORK PLANS and FERTILITY EXPECTATIONS, and thereby providing an erroneous interpretation of our findings.

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[2] Our arguments would be supported if we could find a positive correlation between women's age and extent to which they believe that workers' employability and/or wage potential are reduced when their labor force activity is interrupted.

For convenience, we will call the first alternative hypothesis the Liberation Hypothesis. According to this hypothesis, there has been a secular trend in women's ideas about proper role behavior for mothers of young children. As a result of this trend, members of more recent birth cohorts find it more acceptable for a mother of small children to spend substantial amounts of time away from the home in order to hold employment than members of less recent birth cohorts, assuming that responsible adult care is provided for the mother's children in the mother's absence. Thus, according to the Liberation Hypothesis, women from younger cohorts who expect to be employed after childbearing expect to interrupt their labor force participation for less time per child they bear than women from older cohorts who have similar expectations of labor force activity. As a result, younger cohorts find childbearing less detrimental to their future employability and earning power than older cohorts, and maximizing earnings and employability serves as less reason for younger cohorts to limit their fertility than it does for older cohorts. Because the data we utilize in this paper are cross-sectional, cohorts are indistinguishable from age groups, and if the Liberation Hypothesis is true, the relationship we find between Age and the effect of WORK PLANS and FERTILITY EXPECTATIONS is really the effect of historical factors which have caused cohort differences in sex role attitudes, not developmental factors which have caused age differences in knowledge of the effects of interruptions in labor force participation.

Fortunately, the NLS data permit us to investigate the possibility that age differences in sex role attitudes account for the relationship we have found between women's age and the effect of their labor force participation plans on their fertility expectations. The Liberation Hypothesis assumes that younger women are more liberal in their sex role attitudes than are older women and are more tolerant of work outside the home by mothers of young children. Our data include four Likert scale questions which deal with the effects of women's employment on the welfare of their families. These are items 1, 4, 6 and 8 in the work attitude scale shown on p. 38 in chapter 3. The correlation between response to these items on the age of the woman was examined. For items 1 and 6 the correlation with age was positive and significant ($p < .01$) indicating that older women were more likely to give traditional responses than were younger women. Responses to items 4 and 8 showed no significant correlation with the age of the respondent. The means and standard deviations of the responses to these items were then examined for the age groups used in this analysis. No clear trend toward increasing sex role conservatism with the age of the woman was apparent. Since the Liberation Hypothesis states that the relationship between a woman's age and the effect of her plans for work on her fertility intentions is due to cohort differences in sex role attitudes, the hypothesis will be supported if the relationship between age and the coefficient for WORK PLANS in the equation for FERTILITY EXPECTATIONS vanishes when the effect of these attitudes is held constant. In order to test the Liberation Hypothesis, we have computed several regression analyses reported in table 4.3. In each regression we allow the coefficient for WORK PLANS in the Basic Model to be caused by two independent variables: the midpoint of the age span of the women for whom the coefficient was estimated, and these women's mean value on a Likert-scale questionnaire item which measures attitudes about the effects of a mother's employment on the welfare of her children.[3] The Learning Hypothesis predicts that the coefficient of age in these regressions will be about the same as the coefficient of age when no sex role attitude measures are included in the equation (i.e., the coefficient will be about the same as the coefficient of age in equation (1)). The Liberation Hypothesis predicts that the coefficient for age will vanish, or at least be substantially reduced when sex role attitude measures are included in the equation predicting the coefficient for WORK PLANS. Remembering that the coefficient for age in equation (1) is -.1154, it is clear from the regression results presented in column 1, table 4.3 that holding sex role attitudes constant causes only trivial differences in our estimate of the effect of women's age on the coefficient for WORK PLANS in the Basic Model. The coefficient for age is changed only very slightly when the effect of sex role attitudes is held constant. Looking at the far right column of table 4.3, notice that the correlation between age and the coefficient for WORK PLANS remains impressively high when it is partialled on the various sex role attitudes. So we have some empirical basis for rejecting the Liberation Hypothesis. We now turn to

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[3] Since we were able to estimate the Basic Model separately for only five age groups, we have only 5 age-specific coefficients for WORK PLANS and the number of independent variables that can be entered into a regression analysis of these coefficients is extremely limited. Thus we perform five separate regressions, each one regressing the coefficient for WORK PLANS on age and a different sex role attitude indicator.

Table 4.3. Regressions of Age-Specific Coefficient for LFPP on age and Each or Several Sex Role Attitude Indicators[a]

| Sex role attitude indicator[b] | Metric coefficient for age[c] | Metric coefficient for S.R.A. indicator | Partial correlation between age and coefficient of LFPP (Net of S.R.A. indicator)[d] |
|---|---|---|---|
| 1. Modern conveniences permit a wife to work without neglecting her family............................ | -.1064 | -.3630 | -.831 |
| 2. A wife who carries out her full family responsibilities doesn't have time for outside employment... | -.1033 | -.9906 | -.943 |
| 3. The employment of wives leads to more juvenile delinquency.......... | -.1101 | -.1746 | -.843 |
| 4. Working wives lose interest in their homes and families.......... | -.1133 | -.3039 | -.944 |
| 5. WORKATT (a 9-item Likert scale of attitudes about the costs and benefits of female labor force participation; described in table 4.1 and in text)[e]........ | -.1057 | -.0891 | -.919 |

Notes: [a] The dependent variable in each of these equations is the metric coefficient for LFPP in equation (2) of the Basic Model, the equation for FE. The Basic Model is estimated separately in each of five different age groups, providing an n of five for each of the regressions reported in this table.

[b] Items scored on a five point Likert scale from "strongly agree" to "strongly disagree." The first item listed in this table was scored from one (for "strongly agree") to five (for "strongly disagree"). Items 2, 3, and 4 scored from five (for "strongly agree") to One (for "strongly disagree"). See "Data" section of text for complete wording of these items. The value of an S.R.A. indication for an age group is the mean score of the item for women in that age group.

[c] Age is the midpoint of the interval which defines each of the five age groups for which the Basic Model was estimated.

[d] Partial correlation of Age and coefficient for LFPP net of S.R.A. indicator.

[e] WORKATT includes the first four sex role attitude items listed in this table.

another hypothesis which competes with our explanation of age differences in the effects of labor force participation plans on fertility expectations.

The next plausible alternative to the Learning Hypothesis is that our findings are a statistical artifact of the relationship between a woman's age and the certainty she feels about the number of children that she will have in her lifetime. According to this alternative hypothesis, as women grow older, they also become more certain of the number of children that they will eventually bear in their lifetime. Their certainty increases, this hypothesis suggests, because older women presumably have more information than younger females about their fecundity, the extent to which they enjoy childbearing and childrearing, the extent to which they can afford to pay the expenses involved in raising children, their ability to control their own fertility and other factors affecting the number of children they expect and want to bear in their lifetime. Statistically, this indecisiveness of younger women manifests itself as random disturbances in the variable FERTILITY EXPECTATIONS; the larger the uncertainty, the larger the random disturbance component of FERTILITY EXPECTATIONS. And as the disturbance component of FERTILITY EXPECTATIONS gets larger, the explanatory power of the variables which predict FERTILITY EXPECTATIONS in our model decrease. As the explanatory power of the predictor variables decreases, so do their standardized (beta) coefficients and, under certain circumstances, their metric (unstandardized) coefficients.[4] Although we do not have direct measures of NLS respondents' feelings of certainty about their fertility expectations, the R-squared statistic for equation (2) does provide a measure of the explanatory powers of our model, and can be used to test an implication of the Uncertainty Hypothesis. Since the Basic Model was fitted separately for women of different ages, we can compare the R-squared statistics for the different age groups to see if explanatory power of the equation for FERTILITY EXPECTATIONS increases with age as predicted by the Uncertainty Hypothesis. Looking at table 4.4, notice that the R-squared statistics do not increase with age. Rather, these statistics decrease markedly from a high of .430 for 19-to-20-year-olds to a low of .037 for 27-29-year-olds. So we can reject the Uncertainty Hypothesis as a plausible alternative explanation of the relationship between a woman's age and the effects of her labor force participation plans on her fertility expectations.

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[4] These "certain circumstances" would include the situation in which the standard deviation of FERTILITY EXPECTATIONS does not vary with women's uncertainty about their expected family size. Assuming for a moment that a woman's uncertainty is determined substantially by age, as the hypothesis suggests, there is some evidence that the standard deviation of FERTILITY EXPECTATIONS does not vary inversely with uncertainty. The standard deviation of FERTILITY EXPECTATIONS in each of the five age groups is 1.25, 1.11, 1.12, 1.15, and 1.33, respectively, for age groups 19-20, 21-22, 23-24, 25-26, and 27-29. No strong relationship between age and the standard deviation of FERTILITY EXPECTATIONS is evident here. If the standard deviation of FERTILITY EXPECTATIONS increased proportionately with uncertainty, and if the standardized coefficient of WORK PLANS decreased proportionately with uncertainty, the metric coefficient of WORK PLANS would be unaltered by changes in certainty, since by definition $b = b(\sigma_y)/\sigma_x$, where $b$ = the standardized coefficient of WORK PLANS, $\sigma_y$ = the standard deviation of FERTILITY EXPECTATIONS, $\sigma_x$ = the standard deviation of WORK PLANS, and $b$ = the metric coefficient of WORK PLANS.

We have now discussed and dismissed two alternatives to the Learning Hypothesis explanation of the relationship between a woman's age and the effect of her labor force participation plans on her fertility expectations. We now deal with a third alternative, the hypothesis that it is a woman's life cycle stage, not her age, which determines the impact of her labor force participation plans on her fertility expectations.

The Learning Hypothesis, presented earlier in these papers, assumes that the negative relationship between plans for labor force participation and expected family size strengthens as women gain information about and experience with the operation of the labor market and the demands of motherhood. Movement through the family life cycle could provide young women with some of this information since experience with childbearing and rearing increases over life cycle stages. Life cycle stages are typically conceived as periods of time bounded by milestones in the life of an ideal-typical individual. In research on women's fertility and labor force participation, these milestones would reasonably include the woman's marriage, her first childbirth, and her final childbirth. These events in a woman's life mark obvious time-ordered discontinuities in the experiences, role-expectations and even financial pressures to which she is exposed. Women who marry and thereby move from the first to second stage of the life cycle might change their childbearing plans or intentions to work because they begin to consider the opinions of their new spouse on these issues. There is no reason to believe that the influence of the husband on these work plans and fertility expectations of young women is not random with, for example, some mates wanting more children than their new wife planned, some wanting fewer. Marriage should, therefore, have little influence on the relationship between these family size and employment intentions. But the birth of the first child, which signals the beginning of stage three of the life cycle, exposes the young woman to the realities of childrearing and gives her some experience with the time and money investments that a young child requires. The Learning Hypothesis states that this experience should strengthen the negative relationship between work

Table 4.4. Effects of Labor Force Participation Plans (LFPP) on Fertility Expectations (FE), by Life Cycle Stage, with Certain Related Statistics[a]

| Life cycle stage | Partial regression coefficient of LFPP in equation for FE[b] | | $R^2$ of equation for FE | Mean age | N[c] |
|---|---|---|---|---|---|
| | Metric (unstandardized) coefficients | Beta (standardized) coefficients | | | |
| | "A" | "B" | "C" | "D" | "E" |
| 1. Never married and no children ever born................ | -1.052<br>(.398) | -.392<br>(.148) | .369 | 21.6 | 894 |
| 2. Married with no children ever born.. | -0.490<br>(.292) | -.237<br>(.141) | .208 | 23.1 | 676 |
| 3. Married with some children and expecting to bear more children....... | -0.309<br>(.394) | -.130<br>(.166) | .387 | 24.4 | 775 |
| 4. Married with some children and no more children expected............ | -0.980<br>(.394) | -.519<br>(.209) | .090 | 26.0 | 797 |

Notes: [a] All variables defined in text and in table 4.1.

[b] These are partial regression coefficients estimated by the method of two stage least squares. The statistics reported in columns "A," "B," and "C" in this table were obtained by estimating the equation for FERTILITY EXPECTATIONS described in figure 3.1 separately for women in different life cycle stages. Standard errors of coefficients are shown in parentheses below corresponding coefficients.

[c] 447 women were divorced, separated, widowed, not "spouse present," did not report their marital status, or were never-married mothers. These women were excluded from the life cycle stage analyses.

plans and childbearing intentions. Women who discover that they enjoy raising children may decide that they won't have time to hold a job. And those who feel that they will want or need to work later in their lives may find that after trying out motherhood, that for them the disadvantages of that third or fourth child outweigh the advantages.

The experience with family responsibilities gained by women as they pass from one life cycle stage to another makes us suspect that the effect of women's labor force participation plans on their fertility expectations may change also over life cycle stages (see Waite, 1975; Sweet, 1974; Oppenheimer, 1974; Kish and Lansing, 1957; Glick, 1957).

Because life cycle stages are sequential, phenomena which are caused by changes in life cycle stage are also correlated with age. Looking at column "D" of table 4.4, notice that the mean age of women in the NLS sample increases strictly monotonically with their life cycle stage. Thus it is at least plausible that the relationship we have observed between age and the coefficient for WORK PLANS is spurious and can be accounted for by the correlation between age and life cycle stage. We call this plausible alternative to the Learning Hypothesis the Life Cycle Hypothesis.

Since the mean age of women in the NLS sample increases monotonically with each successive life cycle stage, the coefficient for WORK PLANS in the equation for FERTILITY EXPECTATIONS must have a larger value for women in earlier life cycle stages if the Life Cycle Hypothesis is to remain plausible. Looking at columns "A" and "B" of table 4.4, notice that neither the metric nor the standardized coefficients of WORK PLANS vary in a pattern which is at all consistent with the Life Cycle Hypothesis: The absolute value of the metric coefficient for WORK PLANS reaches a maximum at stage 1, decreases from stage 1 to stage 3, and then increases substantially in stage 4. So we have an empirical basis for believing that we have not mistaken the effects of life cycle stage on the coefficient for WORK PLANS for the impact of a woman's age on the effects of her labor force participation plans on her fertility expectations. We reject the Life Cycle Hypothesis.

## IV. The Effects of Fertility Expectations on Labor Force Participation Plans, By Age and By Life Cycle Stage

In an earlier analysis presented in chapter 3 based on the Basic Model shown in figure 3.1, Waite and Stolzenberg (1975) found that NLS women's fertility expectations had virtually no effect on their plans for labor force participation at age 35. Waite and Stolzenberg concluded that this finding was surprising, but that it did not contradict earlier research which found that mothers of pre-school-age children are less likely to participate in the labor force than women who do not have young children (see Sweet, 1968). Waite and Stolzenberg argued that

> if childbearing reduces female labor force participation primarily by putting intense pressure on mothers to stay home with their pre-school-age children, then finding of negligible effects on FERTILITY EXPECTATIONS on WORK PLANS might well be due to the high probability that women in our sample expect that their children will be of school age by the time the respondents themselves are 35 years old.

If this explanation of Waite and Stolzenberg's earlier findings is correct, then we should find no large life cycle or age differences in the effects of FERTILITY EXPECTATIONS on WORK PLANS. The overwhelming majority of the young women respondents in the NLS plan to have three children or less. Thus, the differences in expected family size of women who intend to work later and those who don't is likely to be only one child. Women who expect to have three children, for whatever reason, are not precluded from working by that choice. This is especially true since all their children would probably be of school age by the time the women were 35 years old. Getting married or having a first birth, which signal changes in life cycle stage, might cause a woman to revise her family size intentions but need not change the effect these intentions have on her plans for work when she is 35 years old. Looking at table 4.5, notice that both the standardized and the unstandardized coefficients for FERTILITY EXPECTATIONS in the equation for WORK PLANS are small in all age groups. Looking at table 4.6, notice that both the standardized and the unstandardized coefficients for FERTILITY EXPECTATIONS in the equation for WORK PLANS are small for women in all life cycle stages. These findings leave Waite and Stolzenberg's earlier findings undisturbed.

## V. Summary and Conclusions

The research reported in this paper was undertaken to answer two questions: (1) Does the relationship between young women's fertility expectations and work plans vary with their age and life cycle stage? And, (2) If age and life cycle stage do affect this relationship, what explains the interaction between age, life cycle and the effects of fertility expectations and labor force participation plans on each other? In order to answer the first question, we estimated a nonrecursive model of young women's fertility expectations and plans for future labor force participation. Parameters of the model were estimated separately for women in each of five different age groups, and

## Table 4.5. Effects of Fertility Expectations (FE) on Labor Force Participation Plans (LFPP), by Age, with R-Squared Statistics[a]

| Age group | Partial regression coefficients | | $R^2$ for equation |
|---|---|---|---|
| | Metric (unstandardized) coefficients | Beta (standardized) coefficients | |
| 19-20 years old...... | -.038<br>(.023) | -.096<br>(.058) | .112 |
| 21-22 years old...... | -.013<br>(.031) | -.029<br>(.069) | .145 |
| 23-24 years old...... | -.016<br>(.028) | -.036<br>(.063) | .056 |
| 25-26 years old...... | -.006<br>(.038) | -.015<br>(.088) | .069 |
| 27-29 years old...... | -.050<br>(.025) | -.135<br>(.068) | .033 |

Notes: [a] All variables defined in text and in table 4.1.

[b] These are partial regression coefficients estimated by the method of two-stage least squares. The statistics reported in this table were obtained by estimating the equation for WORK PLANS described in figure 3.1 separately for women of different ages. Standard errors of coefficients are shown in parentheses below corresponding coefficients.

Table 4.6. Effects of Fertility Expectations (FE) on Labor Force Participation Plans (LFPP), by Life Cycle Stage, with Corresponding Multiple R-Squared Statistics[a]

| Life cycle stage | Partial regression coefficients[b] | | $R^2$ for equation |
|---|---|---|---|
| | Metric (unstandardized) coefficients | Beta (standardized) coefficients | |
| 1. Never married and no children ever born....... | -.046<br>(.020) | -.123<br>(.053) | .150 |
| 2. Married with no children ever born............ | -.012<br>(.042) | -.025<br>(.087) | .122 |
| 3. Married with some children and expecting to bear more children........ | -.033<br>(.024) | -.079<br>(.058) | .051 |
| 4. Married with some children and no more children expected.......... | .032<br>(.046) | .060<br>(.087) | .072 |

Notes: [a] All variables defined in text and in table 4.1.

[b] These are partial regression coefficients estimated by the method of two stage least squares. The statistics reported in this table were obtained by estimating the equation for WORK PLANS described in figure 3.1 separately for women in different life cycle stages. Standard errors are shown in parentheses below corresponding coefficients.

each of four different life cycle stages. In our analysis by years of age, we found that the effects of WORK PLANS on FERTILITY EXPECTATIONS increase linearly with age, changing from a mildly inhibiting influence on the number of children that 19-and-20-year-old women plan to bear to a substantial negative impact on the fertility expectations of 27-29-year-old females.

In order to explain this finding, we advanced a conjecture which we called the Learning Hypothesis. According to the Learning Hypothesis, the inverse effect of WORK PLANS on FERTILITY EXPECTATIONS increases as women grow from age 19 to age 29, because their knowledge of the demands of motherhood and their information about the workings of the labor market improve during that time. Specifically, we suggested that as women grow older, they become increasingly aware of the extent to which childbearing and childrearing are likely to interrupt their labor force participation. We also suggested that as women age, they also become increasingly aware of the extent to which a hiatus in a person's labor force participation reduces the quality of their subsequent employment. Thus, we reasoned, as women who plan to work at age 35 grow older, they increasingly become aware of the extent to which their work-related satisfactions will be limited by their fertility. As a result, the extent to which they limit their expected fertility to accommodate their employment plans also increases as they grow older. The Learning Hypothesis is not directly tested in this paper because we simply lack the data necessary to perform a direct test. However, the hypothesis is consistent with the facts available to us at this time. Further, we test three plausible alternatives to the Learning Hypothesis and are able to reject them all, thereby increasing our confidence in our explanation of age differences in the effect of labor force participation plans on fertility expectations.

If the Learning Hypothesis is true, it would appear to have important implications for certain fertility reduction strategies which have been advanced in recent years. For example, it has been suggested that the birth rate in the United States and other nations can be lowered by increasing employment opportunities for married women there (Blake, 1969, 1971; Davis, 1967). The logic behind this proposal is to offer women a choice between careers as mothers and careers as labor force participants. However, our findings suggest that the success of this strategy in reducing actual fertility may depend heavily upon the age at which women bear children. If wives tend to do their childbearing at an age when the effect of labor force participation plans on fertility expectations is high, then job opportunities which induce females to plan future labor force participation would seem likely to have a large impact on the number of children that women actually bear. But if women tend to do their childbearing at an age when labor force participation plans have only a weak effect on fertility expectations, then economic and social conditions which induce females to plan future employment seem likely to have only a weak effect on actual fertility, regardless of how much these work plans might subsequently lead mothers to wish that they had been less fertile. However, if the Learning Hypothesis is correct, then the relationship between women's age and the effect of their labor force participation plans on their fertility expectations is not fixed developmentally, but varies as a function of their knowledge of the workings of the labor market and the demands of childbearing and childrearing. Further, it would seem possible to use mass educational campaigns to speed up the process by which women acquire this knowledge, and thereby to lower the age at which labor force participation plans exert a significant impact on fertility expectations. We suspect that an educational campaign of this sort might be used to increase the efficiency of a program designed to reduce population growth by increasing the proportion of women who plan to be employed after childbearing. However, we are acutely aware that we have been unable to provide a direct test of the Learning Hypothesis, and so we dare only say that these inferences seem reasonable in light of our findings, but that they must await further, more direct testing before being accepted, let alone applied as part of a population policy.

Our analysis of life cycle stage differences in the effects of labor force participation plans on fertility expectations provided results which appear to be consistent with the Learning Hypothesis and which indicate clearly that we have not mistaken life cycle differences in these effects for age differences in the impact of work plans on childbearing expectations. However, we hesitate to interpret out life cycle analyses overly much -- the research reported here is based on cross-sectional data, and cross-sectional measurements provide no clear causal ordering of life cycle stage, fertility plans, and expectations of future labor force participation. Suffice it to say that our primary motivation for investigating life cycle stage effects here has been to test the hypothesis that we have confounded life cycle stage and age in our analysis of age differences in the relationship between labor force participation plans and fertility expectations. Empirical analyses strongly indicate that these effects have not been confounded, and, further, suggest that there are large life cycle differences in the effect of women's labor force participation plans on their fertility expectations. A detailed analysis of these life cycle differences must await a more complicated research design than that used here, richer data than are available now, or both.

Although considerable variation across age groups and life cycle stages in the effects of labor force participation plans on fertility expectations was found, the effects of fertility expectations on labor force participation plans are uniformly small wherever they are examined. The analysis presented in chapter 3 which did not focus on age and life cycle stage, we found weak, nearly negligible effects of fertility expectations on labor force participation plans. In assessing the results of that analysis, it was tentatively concluded that this finding was consistent with the argument that women's labor force participation is interrupted by the presence of pre-school-age children in the home, but that if women expect their children to be in school when the women themselves reach age 35, the number of children they expect to bear does not affect their plans for labor force participation at age 35. The analyses reported here are entirely consistent with these earlier conclusions and increase confidence in them.

# APPENDIX

Since the relationship between age and the coefficient for WORK PLANS is linear, we can take account of the effect of age on the coefficient for WORK PLANS by writing the coefficient for WORK PLANS as a linear function of age, as we have done in equation (2) below. Equation (2) is identical to the equation for FERTILITY EXPECTATIONS in the Basic Model, except that $c_7 = a_0 + a_1 AGE$.

$$FE = c_0 + c_1 AGE + c_2 MSP + c_3 ED + c_4 BLACK + c_5 IFS + c_6 SIBS + (a_0 + a_1 AGE)\ LFPP \tag{2}$$

The parameters $a_0$ and $a_1$ can be estimated by either of two techniques. First, they can be estimated by computing the equation for FERTILITY EXPECTATIONS separately for women in each of several age groups and then estimating $a_0$ and $a_1$ by regression of the coefficient of LFPP on the mean age of the women. We have already followed this procedure and the parameter estimates can be read from the regression reported in equation (1). The parameters $a_0$ and $a_1$ can also be estimated by multiplying through equation (2) so that the parentheses can be deleted. Doing so, we obtain equation (3)

$$FE = c_0 + c_1 AGE + c_2 MSP + c_3 ED + c_4 BLACK + c_5 IFS + c_6 SIBS + a_0 LFPP + a_1 AGE \cdot LFPP \tag{3}$$

Equation (3) can be estimated by least squares techniques appropriate for simultaneous equations with two endogenous regressors. In theory, both of these methods for estimating $a_0$ and $a_1$ produce identical results and should be equally convenient to apply. In practice, however, near multicollinearity introduces rounding error problems into the computations needed to utilize the second approach. We attempted to overcome these computational difficulties by several strategies but were not successful.[1]

---

[1] The multicollinearity problems we encountered occurred because the product of LFPP and AGE correlates +.98 with LFPP. Ridge regression can be used to overcome rounding error problems due to near multicollinearity and near collinearity in estimating parameters by least squares (see "Multicollinearity Problem and Ridge Regression in Sociological Models," Mason and Brown, 1975), but we rejected the ridge approach because our estimation of the equation for FERTILITY ESPECTATIONS in each of five different age groups led us to believe that the coefficients of LFPP and/or the product of LFPP and AGE would be large relative to other coefficients in the equation. Under these circumstances, ridge regression is likely to produce badly biased coefficient estimates (Mason and Brown, 1975: 135-50).

Another approach to revising our Basic Model is to translate the coordinates of the plane defined by LFPP and AGE$_2$so that the coefficient for LFPP drops out of the equation for FE.[2] It is important to stress that translation of axes to make LFPP drop out of the equation is not the same as substituting the product of LFPP and AGE for LFPP in the equation for FERTILITY EXPECTATIONS. The translation merely allows us to use seven independent variables to write an equation which (1) can be estimated by regression analysis, and (2) is the algebraic equivalent of equation (2), which has eight independent variables and is impossible to estimate by regression because of multicollinearity problems. Unfortunately, one must know $a_0$ and $a_1$ before one can translate the coefficient for LFPP out of existence. Thus, the translation does not help us to overcome multicollinearity problems in estimating $a_0$ and $a_1$. However, we shall see that the translation does serve certain purposes.

To make the proper translation, we first rewrite equation (2) as follows:

$$FE = c_0 + c_1 AGE + c_2 MSP + c_3 ED + c_4 BLACK + c_5 IFS + c_6 SIBS + a_1\ (a_0/a_1)+AGE\ \ LFPP \qquad (4)$$

Next we define a new variable called $AGE^t$ as $AGE + (a_0/a_1)$, and equation (4) can be rewritten as

$$FE = c_0 + c_1 AGE^t + c_2 MSP + c_3 ED + c_4 BLACK + c_5 IFS + c_6 SIBS + a_1 AGE^t LFPP \qquad (5)$$

Estimating the parameters of equation (5) provides one piece of information that is not provided by using age-specific fits of the equation for FERTILITY EXPECTATIONS to estimate the parameters $a_1$ and $a_0$: By comparing the standardized coefficient of LFPP in the equation for FERTILITY EXPECTATIONS, we can determine the extent to which modifying the Basic Model to allow the impact of LFPP on FE to vary with age increases the explanatory power of LFPP in the equation for FE.[3]

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[2] In graphical terms, translation corresponds to moving the origin of a graph to some arbitrary place in space which is more convenient for the analyst, viewer, reader, printer or writer than the original location of the origin. Although sociologists seldom refer to translations by name, they perform them routinely by subtracting the means of variables from values of the variables to eliminate the constant term in regression analyses. The use of translations to simplify equations is discussed in most elementary calculus tests, e.g. G. B. Thomas (1960: 486).

Before going on to discuss the substantive significance of the results of estimating equation (5), it seems worthwhile to observe that the estimated coefficient for AGE$^{t}$LFPP in equation (5) should be equal to the coefficient for AGE in equation (3). If these two coefficients are not equal, then we have made some mistake in our calculations or in the logic that led us to conclude that translating AGE would permit us to drop LFPP from equation (5) without misspecifying the equation for FE. The metric coefficient for AGE$^{t}$LFPP is -.1204 which is rather close to the coefficient of -.1154 that is obtained in equation (3). The standardized (beta) coefficient for AGE$^{t}$LFPP was found to be -.40. This coefficient is 25 percent (=(.40-.32)/.32) larger than the coefficient of .32 obtained for LFPP when the Basic Model is estimated for all women in the NLS sample. So we can conclude that altering the Basic Model to allow the effect of LFPP on FE to vary with AGE does substantially increase the explanatory power of LFPP.

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[3] Ideally we would compare partial correlations to compare "explanatory power" in the sense that we are using the term (see Blalock, 1960:345). However, partial correlations are not defined in the context of nonrecursive models and are, therefore, inappropriate for present purposes. Comparison of the R$^{2}$ statistics for the equation for FERTILITY EXPECTATIONS and (5) would not serve present purposes either, since the two R$^{2}$ statistics could be equivalent even if the product of LFPP and AGE increased in explanatory power over LFPP "at the expense of" the explanatory power of some other variable in the model which causes FE.

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Table A-1. Means And Standard Deviations Of Variables In The Basic Model Of Birth Expectations Of Young Women (Chapter II)

| | Means | Standard deviation |
|---|---|---|
| Marital status | .52715 | .49933 |
| Black | .11323 | .31691 |
| Age | 21.68981 | 3.13504 |
| Education | 12.14271 | 1.92554 |
| Current employment | .57598 | .49426 |
| Work plans | .45657 | .49817 |
| Sex role attitudes (1968) | 8.11573 | 1.85589 |
| Ideal family size (1971) | 2.73459 | 1.07052 |
| Family financial status (1971) | 2.86059 | .95421 |
| Birth expectations (1971) | 2.68841 | 1.38967 |
| Sex role attitudes (1972) | 7.32896 | 2.38914 |
| Ideal family size (1973) | 2.48489 | .99756 |
| Family financial status (1972) | 2.83028 | 1.08342 |
| Birth expectations (1973) | 2.38370 | 1.23600 |

Table A-2. Zero-Order Correlations Between Variables in the Basic Model of Birth Expectations of Young Women (Chapter II)

| | MS | BLK | AGE | ED | WORK | WORK PLANS | SRA 68 | IFS 71 | FFS 71 | BE 71 | SRA 72 | IFS 73 | FFS 73 | BE 73 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marital status | 1.000 | | | | | | | | | | | | | |
| Black | -.1015 | 1.000 | | | | | | | | | | | | |
| Age | .5066 | -.0231 | 1.000 | | | | | | | | | | | |
| Education | -.0080 | -.1537 | .2443 | 1.000 | | | | | | | | | | |
| Work | -.1608 | .0212 | -.0102 | .1583 | 1.000 | | | | | | | | | |
| Work plans | -.0967 | .1072 | -.0140 | .0874 | .0112 | 1.000 | | | | | | | | |
| Sex role attitudes '68 | -.0917 | -.0547 | .0633 | .1514 | .0348 | .0257 | 1.000 | | | | | | | |
| Ideal family size '71 | -.1352 | .1092 | -.1138 | -.1091 | .0137 | -.0564 | .0162 | 1.000 | | | | | | |
| Family financial status '71 | -.0127 | -.0524 | -.0064 | .0585 | .0734 | .0075 | .0010 | -.0276 | 1.000 | | | | | |
| Birth expectations '71 | -.0063 | .0022 | -.0197 | -.1151 | -.0626 | -.0763 | .0261 | .5595 | -.0177 | 1.000 | | | | |
| Sex role attitudes '72 | -.0560 | -.0715 | -.0548 | -.0796 | -.0413 | -.0889 | .0833 | .0891 | -.0323 | .0847 | 1.000 | | | |
| Ideal family size '73 | -.0465 | .0878 | -.0300 | -.1121 | -.0126 | -.0575 | -.0172 | .5029 | -.0189 | .4277 | .0820 | 1.000 | | |
| Family financial status '73 | -.0063 | -.0365 | -.0194 | .0554 | .0612 | -.0192 | .0227 | -.0095 | .1720 | -.0053 | -.0128 | -.0382 | 1.000 | |
| Birth expectations '73 | .0564 | .0620 | .0336 | -.1480 | -.0999 | -.0622 | -.0267 | .3500 | -.0294 | .5284 | .0940 | .5523 | -.0155 | 1.000 |

Table A-3. Brief Definitions of Variables and Variable Symbols Used in Appendix Tables

| Variable symbol | Variable description |
|---|---|
| LFM | Labor force participation of respondent's mother when respondent was 14 years old (1 = mother was in labor force; 0 = mother was not in labor force). |
| AGE | Respondent's age in years as of January 1, 1973. |
| ATT | Work attitudes (9-question scale of respondent's attitudes regarding the benefits and costs of labor force participation by married women). |
| MSP | Marital status (1 = married; 0 = not presently married, or married but presently separated). |
| IFS | Ideal family size (number of children that respondent considers "ideal" for a family). |
| ED | Number of years of school that respondent has completed. |
| SIB | Respondent's number of siblings. |
| LFPP | Plans for labor force participation at age 35 (1 = plan to be employed; 0 = not sure or plan to be out of the labor force). |
| FE | Fertility Expectations (total number of children which the respondent plans to have in her life time). |
| BLK | Respondent's race (1 = Negro; 0 = non-Negro). |
| HATT | Respondent's report of husband's approval or disapproval of her actual or possible labor force participation at present time. |
| HINC | Husband's annual income in 12 months preceding 1973 interview |

Table A-4. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: All Women

| | LFM | AGE | ATT | MSP | IFS | ED | SIB | LFPP | FE |
|---|---|---|---|---|---|---|---|---|---|
| AGE | .06574 | | | | | | | | |
| ATT | .07415 | .07199 | | | | | | | |
| MSP | .02031 | .33722 | .07492 | | | | | | |
| IFS | .03305 | -.03367 | .15362 | -.03473 | | | | | |
| ED | .01430 | .03165 | -.19905 | -.09936 | -.07939 | | | | |
| SIB | .10409 | -.05741 | .01286 | -.00564 | .16208 | -.27099 | | | |
| LFPP | -.06607 | .03998 | -.20968 | -.05977 | -.07647 | .16801 | -.02969 | | |
| FE | .01340 | .03610 | .17389 | .05863 | .56525 | -.15646 | .10492 | -.08681 | |
| BLK | -.09882 | -.00961 | -.08564 | -.14013 | .09588 | -.12590 | .26144 | .05845 | .05446 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.6285 | .4832 |
| AGE | 23.7450 | 3.1288 |
| ATT | 22.4890 | 5.4270 |
| MSP | .6464 | .4781 |
| IFS | 2.4182 | .9989 |
| ED | 12.7395 | 2.1138 |
| SIB | 3.0765 | 2.2890 |
| LFPP | .4844 | .4982 |
| FE | 2.3679 | 1.2035 |
| BLK | .0948 | .2930 |

Table A-5. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: Single Women (Not Currently Married)

| | LFM | AGE | ATT | IFS | ED | SIB | LFPP | FE |
|---|---|---|---|---|---|---|---|---|
| AGE | .09886 | | | | | | | |
| ATT | .17513 | -.06134 | | | | | | |
| IFS | .08341 | -.09919 | .23337 | | | | | |
| ED | .01855 | .25676 | -.17305 | -.12464 | | | | |
| SIB | .09237 | -.03456 | .01535 | .18826 | -.17864 | | | |
| LFPP | -.08785 | .02015 | -.24944 | -.12807 | .21135 | -.05613 | | |
| FE | .00511 | -.14465 | .24565 | .63572 | -.13899 | .08806 | -.19811 | |
| BLK | -.06830 | .11418 | -.07901 | .05470 | -.21003 | .28824 | .07448 | -.02123 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.6223 | .4850 |
| AGE | 21.6688 | 2.5655 |
| ATT | 21.8497 | 5.3616 |
| IFS | 2.5733 | 1.1655 |
| ED | 13.3416 | 1.8800 |
| SIB | 3.0058 | 2.2918 |
| LFPP | .5132 | .5001 |
| FE | 2.2857 | 1.3408 |
| BLK | .1310 | .3375 |

Table A-6. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: Currently Married

| | LFM | AGE | ATT | IFS | ED | SIB | LFPP | FE | BLK | HATT |
|---|---|---|---|---|---|---|---|---|---|---|
| AGE | .06646 | | | | | | | | | |
| ATT | .02792 | .08235 | | | | | | | | |
| IFS | .00222 | .02836 | .12807 | | | | | | | |
| ED | .01656 | .07609 | -.18781 | -.07319 | | | | | | |
| SIB | .09057 | -.08484 | .01971 | .13469 | -.31013 | | | | | |
| LFPP | -.05445 | .07417 | -.20328 | -.05836 | .15926 | -.02348 | | | | |
| FE | .01771 | .09161 | .15130 | .53642 | -.14269 | .10258 | -.03024 | | | |
| BLK | -.12177 | -.02444 | -.07357 | .10536 | -.09282 | .25920 | .05069 | .09769 | | |
| HATT | -.00345 | .26269 | .32038 | .04805 | -.23599 | .03960 | -.08104 | .12471 | -.15705 | |
| HINC | .02175 | .28998 | .01372 | -.04538 | .12964 | -.09732 | .05048 | -.01332 | -.09118 | .14929 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.6337 | .4819 |
| AGE | 24.5303 | 2.9774 |
| ATT | 22.7813 | 5.4066 |
| IFS | 2.4514 | .9224 |
| ED | 12.5914 | 2.1486 |
| SIB | 3.0428 | 2.2461 |
| LFPP | .4606 | .4986 |
| FE | 2.4231 | 1.1265 |
| BLK | .0639 | .2446 |
| HATT | 2.5306 | 1.7245 |
| HINC | 8894.7600 | 5922.2800 |

Table A-7. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: Never Married, No Children

| | LFM | AGE | ATT | IFS | ED | SIB | LFPP | FE |
|---|---|---|---|---|---|---|---|---|
| AGE | .11478 | | | | | | | |
| ATT | .19548 | -.06868 | | | | | | |
| IFS | .09697 | -.11701 | .24929 | | | | | |
| ED | -.00469 | .33292 | -.19226 | -.12361 | | | | |
| SIB | .08751 | -.05830 | .02862 | .21712 | -.16080 | | | |
| LFPP | -.09349 | .00506 | -.25472 | -.14049 | .25501 | -.05011 | | |
| FE | .00485 | -.16838 | .25684 | .63482 | -.14527 | .08317 | -.21489 | |
| BLK | -.05120 | .07496 | -.08872 | .02906 | -.08752 | .37018 | .07482 | -.06987 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.6236 | .4848 |
| AGE | 21.5988 | 2.5050 |
| ATT | 21.8515 | 5.4362 |
| IFS | 2.5603 | 1.1813 |
| ED | 13.5029 | 1.7306 |
| SIB | 2.8913 | 2.2111 |
| LFPP | .5106 | .5002 |
| FE | 2.2489 | 1.3431 |
| BLK | .0892 | .2852 |

Table A-8. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: Married, No Children

| | LFM | AGE | ATT | IFS | ED | SIB | LFPP | FE |
|---|---|---|---|---|---|---|---|---|
| AGE | .09581 | | | | | | | |
| ATT | .02142 | -.05526 | | | | | | |
| IFS | -.00921 | -.02945 | .14134 | | | | | |
| ED | .07848 | .28694 | -.23478 | -.07832 | | | | |
| SIB | .05335 | -.12801 | .04029 | .06982 | -.28868 | | | |
| LFPP | -.10645 | .07221 | -.26848 | -.05723 | .23909 | .02854 | | |
| FE | .00248 | -.18467 | .10213 | .42826 | .00010 | .05758 | -.09505 | |
| BLK | -.11321 | -.01995 | -.05016 | .08425 | -.10030 | .19104 | .03236 | .05518 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.6331 | .4823 |
| AGE | 23.0738 | 2.7888 |
| ATT | 21.8286 | 5.1712 |
| IFS | 2.4052 | .9824 |
| ED | 13.4367 | 2.1401 |
| SIB | 2.7245 | 2.0209 |
| LFPP | .4150 | .4931 |
| FE | 2.0134 | 1.0222 |
| BLK | .0357 | .1856 |

Table A-9. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: Married, Some Children, More Expected

| | LFM | AGE | ATT | IFS | ED | SIB | LFPP | FE |
|---|---|---|---|---|---|---|---|---|
| AGE | .12592 | | | | | | | |
| ATT | .06366 | .09228 | | | | | | |
| IFS | .01957 | .04861 | .15384 | | | | | |
| ED | .01509 | .26704 | -.08517 | -.03777 | | | | |
| SIB | .09032 | -.13971 | -.00068 | .15961 | -.25051 | | | |
| LFPP | -.06253 | .06327 | -.18560 | -.06906 | .13678 | -.01139 | | |
| FE | .02516 | .12535 | .14132 | .62677 | -.09779 | .13311 | -.00963 | |
| BLK | -.16020 | -.06124 | -.07631 | .10912 | -.08915 | .25373 | .07802 | .05572 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.6569 | .4750 |
| AGE | 24.3829 | 2.8377 |
| ATT | 22.9567 | 5.4077 |
| IFS | 2.6677 | .9647 |
| ED | 12.5955 | 1.9142 |
| SIB | 3.1421 | 2.3276 |
| LFPP | .4652 | .4991 |
| FE | 2.9579 | 1.1878 |
| BLK | .0735 | .2612 |

Table A-10. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: Married, Some Children, No More Expected

| | LFM | AGE | ATT | IFS | ED | SIB | LFPP | FE |
|---|---|---|---|---|---|---|---|---|
| AGE | .02450 | | | | | | | |
| ATT | .00408 | .06067 | | | | | | |
| IFS | -.02638 | .17703 | .11219 | | | | | |
| ED | -.05700 | .14657 | -.15743 | -.18477 | | | | |
| SIB | .11979 | -.14830 | -.02239 | .18170 | -.34216 | | | |
| LFPP | -.00118 | -.00399 | -.19267 | -.04171 | .20411 | -.09403 | | |
| FE | .00384 | .27315 | .17725 | .51568 | -.29024 | .07256 | -.03566 | |
| BLK | -.10067 | -.09696 | -.10939 | .13135 | -.05360 | .25988 | .02247 | .15395 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.6173 | .4864 |
| AGE | 26.0268 | 2.5362 |
| ATT | 23.5187 | 5.5122 |
| IFS | 2.3013 | .7721 |
| ED | 11.7937 | 2.0582 |
| SIB | 3.3056 | 2.3769 |
| LFPP | .5038 | .5003 |
| FE | 2.3044 | .9440 |
| BLK | .0821 | .2746 |

Table A-11. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: Women 27 to 29 Years Old in 1973

| | LFM | AGE | ATT | MSP | IFS | ED | SIB | LFPP | FE |
|---|---|---|---|---|---|---|---|---|---|
| AGE | -.02193 | | | | | | | | |
| ATT | .00805 | .09293 | | | | | | | |
| MSP | .02670 | .10090 | .08257 | | | | | | |
| IFS | -.00991 | .09665 | .12158 | .04199 | | | | | |
| ED | -.01655 | -.06695 | -.21265 | -.04606 | -.12698 | | | | |
| SIB | .12433 | -.01041 | .00680 | -.00344 | .16696 | -.34737 | | | |
| LFPP | -.03490 | .02398 | -.18114 | -.09550 | -.09591 | .13682 | -.03003 | | |
| FE | .01508 | .09780 | .17527 | .13408 | .56215 | -.23041 | .13[illegible]3 | -.04392 | |
| BLK | -.09602 | -.01861 | -.08960 | -.25538 | .11951 | -.13448 | .24238 | .03538 | .11674 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.65460 | 0.47580 |
| AGE | 28.00500 | 0.81859 |
| ATT | 23.28900 | 5.59900 |
| MSP | 0.81326 | 0.38995 |
| IFS | 2.52200 | 0.98870 |
| ED | 12.62000 | 2.44800 |
| SIB | 3.00700 | 2.34400 |
| LFPP | 0.49550 | 0.50026 |
| FE | 2.52234 | 1.33296 |
| BLK | 0.09136 | 0.28830 |

Table A-12. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: Women 25 and 26 Years Old in 1973

| | LFM | AGE | ATT | MSP | IFS | ED | SIB | LFPP | FE |
|---|---|---|---|---|---|---|---|---|---|
| AGE | -.03606 | | | | | | | | |
| ATT | .05325 | .02785 | | | | | | | |
| MSP | .01613 | .00908 | .06086 | | | | | | |
| IFS | .03984 | .00262 | .10859 | .01334 | | | | | |
| ED | .11140 | .01161 | -.21050 | -.04253 | -.08582 | | | | |
| SIB | .06961 | .00015 | -.01273 | -.07546 | .16758 | -.26322 | | | |
| LFPP | -.06181 | .02499 | -.19440 | .04276 | -.04321 | .18683 | -.02300 | | |
| FE | .00273 | -.01346 | .15561 | .05775 | .44736 | -.23745 | .16387 | -.04854 | |
| BLK | -.18431 | .02537 | -.06912 | -.17156 | .12796 | -.15289 | .26150 | -.01057 | .07102 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.6540 | .4760 |
| AGE | 25.4800 | .4998 |
| ATT | 22.6360 | 5.8970 |
| MSP | .7840 | .4118 |
| IFS | 2.3660 | .7993 |
| ED | 13.0400 | 2.2966 |
| SIB | 2.8150 | 2.2230 |
| LFPP | .5021 | .5004 |
| FE | 2.2912 | 1.1469 |
| BLK | .0895 | .2857 |

Table A-13. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: Women 23 and 24 Years Old in 1973

| | LFM | AGE | ATT | MSP | IFS | ED | SIB | LFPP | FE |
|---|---|---|---|---|---|---|---|---|---|
| AGE | -.05779 | | | | | | | | |
| ATT | .07672 | .06951 | | | | | | | |
| MSP | -.04028 | .09050 | .05750 | | | | | | |
| IFS | -.04826 | -.01294 | .17386 | -.02484 | | | | | |
| ED | -.04649 | -.04655 | -.21900 | -.15059 | -.10275 | | | | |
| SIB | .13302 | .00168 | .00088 | -.05127 | .12460 | -.26228 | | | |
| LFPP | -.06737 | .02400 | -.20100 | -.05473 | -.05260 | .12816 | -.00961 | | |
| FE | -.01590 | .04029 | .17275 | .07564 | .60938 | -.11650 | .04435 | -.04401 | |
| BLK | -.09348 | -.00695 | -.03882 | -.15489 | .09745 | -.10598 | .25653 | .06697 | .05607 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.65885 | 0.47443 |
| AGE | 23.49900 | 5.00367 |
| ATT | 21.72664 | 5.12735 |
| MSP | 0.71975 | 0.44944 |
| IFS | 2.36730 | 0.85125 |
| ED | 12.91320 | 2.22320 |
| SIB | 2.95350 | 2.24160 |
| LFPP | 0.50334 | 0.50035 |
| FE | 2.30670 | 1.12395 |
| BLK | 0.09302 | 0.29066 |

Table A-14. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: Women 21 and 22 Years Old in 1973

| | LFM | AGE | ATT | MSP | IFS | ED | SIB | LFPP | FE |
|---|---|---|---|---|---|---|---|---|---|
| AGE | .01662 | | | | | | | | |
| ATT | .09369 | -.00095 | | | | | | | |
| MSP | -.02129 | .06593 | .10407 | | | | | | |
| IFS | .11232 | -.03003 | .20411 | .03097 | | | | | |
| ED | -.00575 | .00744 | -.19124 | -.24555 | -.00464 | | | | |
| SIB | .09753 | -.03075 | .06592 | .08616 | .18884 | -.21333 | | | |
| LFPP | -.17386 | .01600 | -.25714 | -.17678 | -.06759 | .20333 | -.02535 | | |
| FE | .07003 | .01751 | .21123 | .10385 | .53085 | -.05623 | .14636 | -.15816 | |
| BLK | -.06469 | .01261 | -.10444 | -.11088 | .07739 | -.11966 | .25633 | .13452 | .01384 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.62800 | 0.48380 |
| AGE | 21.48000 | 0.49980 |
| ATT | 22.17100 | 5.15050 |
| MSP | 0.51760 | 0.50003 |
| IFS | 2.52250 | 1.09830 |
| ED | 12.82000 | 2.07979 |
| SIB | 3.35428 | 2.36670 |
| LFPP | 0.48070 | 0.49996 |
| FE | 2.27280 | 1.10589 |
| BLK | 0.10626 | 0.30838 |

Table A-15. Means, Standard Deviations and Correlation Matrix for Variables in the Basic Model of Work Plans and Birth Expectations of Young Women: Women 19 and 20 Years Old in 1973

| | LFM | AGE | ATT | MSP | IFS | ED | SIB | LFPP | FE |
|---|---|---|---|---|---|---|---|---|---|
| AGE | .01675 | | | | | | | | |
| ATT | .15442 | -.08641 | | | | | | | |
| MSP | -.02669 | .03236 | .01965 | | | | | | |
| IFS | .07300 | -.09593 | .16390 | -.10402 | | | | | |
| ED | -.00875 | .19075 | -.13829 | -.23438 | -.02536 | | | | |
| SIB | .11271 | -.00708 | .01429 | .10109 | .14163 | -.23687 | | | |
| LFPP | -.03343 | .06029 | -.23151 | -.08664 | -.08778 | .23764 | -.04549 | | |
| FE | .00159 | -.09567 | .13303 | -.05751 | .64390 | -.02821 | .02376 | -.15119 | |
| BLK | -.06963 | .00081 | -.12096 | -.05387 | .07291 | -.13959 | .29471 | .07566 | -.00181 |

| | Means | Standard Deviations |
|---|---|---|
| LFM | 1.55167 | 0.49769 |
| AGE | 19.57400 | 0.49480 |
| ATT | 22.41950 | 5.14290 |
| MSP | 0.31878 | 0.48619 |
| IFS | 2.59460 | 1.15940 |
| ED | 12.39370 | 1.20430 |
| SIB | 3.22710 | 2.20430 |
| LFPP | 0.44286 | 0.49710 |
| FE | 2.41359 | 1.24645 |
| BLK | 0.09311 | 0.29081 |